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 Wolfenden 18 North Main St.
 1912 Bauer, Louis Hopewell. U. S. Army.
 1912 Baum, Ewald George. Natick. 17 West Central St.
 1914 Baxter, Clarence Pennell. Topsfield.
 1884 Baxter, Edward Hooker. Hyde Park (Boston).
 19 Webster St.
 1903 Beal, Howard Walter. Worcester. 452 Main St.
 1913 Beale, Samuel Marsden, Jr. Sandwich.
 1897 Beals, Arthur Loring. Brockton. 106 Main St.
 1912 Bean, Charles Franklin. West Medford (Medford).
 Kingsbury 51 Harvard Av.
 1896 Bean, Charles Pierce. Boston. 426 Mass. Av.
 1913 Beardsley, William Henry. Springfield. 84 Maple St.
 1906 Beauchamp, Joseph Octave. Chicopee Falls (Chicopee).
 Office, Springfield.
 310 State St.
 1908 Beaulien, Elmer Joseph. Whitman. Washington St.
 1906 Beaulien, Francis Xavier. Taunton. 121 Bay St.
 1899 Beekey, Chester Charles. Lancaster.
 1890 Bedard, Joseph Armand. Lynn. 26 Ocean St.
 1901 Beebe, Theodore Chapin. Boston. 416 Marlboro' St.
 1901 Beede, M Josephine. Roslindale (Boston).
 10 Conway St.
 1907 Beeley, Leon Gage. Lawrence.
 145 Haverhill St.
 1914 Behrman, Roland Augustus. Mattapan (Boston).
 249 River St.
 1914 Bell, Clarence John. Wellfleet.
 1914 Bell, Conrad. Waltham. 820 Main St.
 1914 Bell, Richard Dana. Somerville. 26 Bow St.
 1876 Bell, William Appleton. Somerville. 26 Bow St.
 1906 Belhumeur, David. Lowell.
 Stanislans 813 Merrimack St.
 1873 Bemis, Charles Albert. 1909 West Medway (Medway).
 1893 Bemis, John Merrick. Worcester.
 223 Salisbury St.
 1875 Benner, Burnham Roswell. Lowell. 62 Sixth St.
 1898 Benner, Herbert Orray. Framingham. 45 Irving St.
 1903 Benner, Richard Stanwood. Springfield. 25 Maple St.
 1906 Bennett, Hamlin Perley. Lynn. 41 Lewis St.
 1902 Bennett, William Hurlburt. Hyde Park (Boston).
 1349 River St.
 1898 Benson, Charles Sweetser. Haverhill. 50 Merrimack St.

1898 Berg, Tekla Amalia Lynn. 1 Atlantic St.
Josefina
1903 Bergin, Stephen Albert....Worcester. 33 Portland St.
1889 Barnard, Barnard Roxbury (Boston).
Lecherzack 440 Warren St.
1914 Berry, Charles Francis....Boston.
541 Commonwealth Av.
1908 Berry, Gordon.....Worcester. 390 Main St.
1896 Berry, John Cutting †1912 Worcester. 7 Highland St.
1890 Berry, Lauriston M †1908 Junction, Wyoming.
1909 Berry, William Christopher. Jamaica Plain (Boston).
Office, Boston.
419 Boylston St.
1901 } Bertrand, Alexis Everiste. { Lowell.
1914 } 10 East Merrimack St.
1908 Besse, Frank Adelbert....Orleans. Main St.
1907 Bessey, Earle Emerson....Waban (Brookline).
Office, Boston.
845 Beacon St.
1883 Best, Enoch George.....Greenfield. 473 Main St.
1905 Bianco, Joseph Anthony....East Boston (Boston).
34 Gladstone St.
1901 Bicknell, Ralph Emerson...Swampscott. 148 Burrill St.
1909 Bieberbach, Walter Daniels. Worcester. 31 Pleasant St.
1907 Bier, Max Daniel.....Lawrence. 88 Concord St.
1906 Bigelow, Alice Houghton...Jamaica Plain (Boston).
14 Warren Sq.
1882 Bigelow, Charles Edwin....Leominster. 2 Park St.
1905 Bigelow, Edward Bridge...Worcester. 61 Pearl St.
1883 Bigelow, Enos Hoyt.....Framingham Center,
(Framingham).
P. O. Box 213,
1913 Bigelow, James Bernard...Holyoke. 61 Pearl St.
1874 Bigelow, William Sturgis..Boston. 56 Beacon St.
1904 Binford, Ferdinand Hyannis (Barnstable).
Augustus Main St.
1903 Binney, Horace.....Boston. 205 Beacon St.
1894 Birge, Ella Freeman.....Provincetown.
1883 Birge, William Spafard....Provincetown. Pearl St.
1885 Birmingham, Robert Lawrence. 170 Salem St.
Michael
1909 Birnie, John Mathews....Springfield. 6 Chestnut St.
1914 Bisbee, Ernest Sydney....Boston. 777 Tremont St.
1878 Bixby, Josiah Peet.....Woburn. 55 Elm St.
1910 Bixby, Oliver Edward....Lynn. 189 Lewis St.
1901 Blaine, Walter Edward....Mattapoisett. 72 Main St.
1900 Blair, George Kenniston...Salem. 311 Essex St.
1897 Blair, Orland Rossini....Springfield. 580 State St.
1904 Blair, Orrin Curtis.....Lynn. 79 N. Common St.
1882 Blaisdell, George Warren..Manchester. 21 Union St.
1913 Blaisdell, John Harper....Lynn. Office, Boston.
111 Newbury St.
1904 Blake, Allen Hanson.....West Somerville (Somerville). 117 Elm St.
1868 Blake, Clarence John....Boston. 226 Marlboro' St.
1906 Blake, Gerald.....Boston. 212 Beacon St.
1888 Blake, Harrison Gray....Woburn. 512 Main St.
1890 Blake, John Bapst.....Boston. 657 Boylston St.
1861 Blake, John George.....Boston. 212 Beacon St.
1901 Blake, Le Grande.....Riverside, R. I.
317 Bullock Point Av.
1898 Blakely, David Newton...Brookline. Office, Boston.
535 Beacon St.
1882 Blanchard, Benjamin Brookline.
Seaver 432 Washington St.
1913 Blanchard, Paul Drake...Lowell. 26 Merrimack St.
1902 Blanchard, Randall Pittsfield. 7 North St.
Howard
1909 Blanchard, William Quincy.
Herbert Fore River Hospital.
1912 Blanchette, William Henry..Fall River.
142 Brightman St.
1904 Blenkhorn, James.....Stoneham. 301 Main St.
1910 Bliss, George Danforth....Dorchester (Boston).
508 Washington St.
1905 Bliss, George Stephen....Fort Wayne, Ind. Ind. Sch.
Feeble-Minded Youth.
1897 Bliss, Jesse Leonti.....Holyoke. 231 High St.
1893 Bliss, Wilbur Howard....Shrewsbury. Main St.
1872 Blodgett, Albert George Ware. 20 Park St.
†1911

1871 Blodgett, Albert Novatus...Boston. 51 Mass. Av.
†1913
1898 Blodgett, John Hammond..Boston.
390 Commonwealth A
1912 Blodgett, Stephen Haskell..South Lincoln (Lincoln).
Office, Boston.
419 Boylston S
1908 Blood, George Willard....Fall River. 723 Middle S
1874 Blood, Robert Allen †1912 George's Mills, N. H.
1868 Boardman, William Boston. 388 Marlboro' S
Elbridge †1909
1906 Boardman, William Parsons.Boston. 388 Marlboro' S
1885 Boardman, William Sidney..Boston. 63 Mt. Vernon
1912 Bodwell, William Mortimer.Framingham.
2 Lexington S
1910 Bogan, Frederick Leon....Dorchester (Boston).
Office, Boston.
374 Marlboro' S
1878 Boland, Elisha Shepard....South Boston (Boston).
809 Broadwa
1912 Boland, Lawrence Francis.Welch, W. Va.
Miners' Hospital, No.
1871 Bolles, William Palmer Roxbury (Boston).
†1913 466 Warren S
1891 Bolton, Charles James....Somerville. 26 Chauncy S
1891 Bond, Sarah Adams.....Jamaica Plain (Boston).
Office, Boston.
41 Fairfield S
1904 Bond, Walter Legrand....West Somerville (Somerville). 322 Highland A
1889 Bond, Willis George.....Revere. 76 Beach St.
1903 Bonnar, James Miller....New Bedford.
186 Pleasant S
1914 Bonelli, Raymond Peter....Boston. 276 Hanover St.
1911 Bonneville, Alfred Joseph..Hatfield. 43 Main St.
1901 Bonney, Charles Austin, Jr..New Bedford.
67 Bedford S
1903 Bonney, Robert.....East Boston (Boston).
7 Princeton S
1897 Boom, Augustus Keeper....Adams. 51 Park St.
1908 Boos, William Frederick...Brookline. Office, Boston.
374 Marlboro' S
1877 Booth, Edward Chauncey Somerville. 40 Boston S
†1915
1907 Boothby, Walter Meredith..Boston.
508 Commonwealth A
1902 Borden, Charles Richardson Brookline. Office, Boston.
Cobb 520 Commonwealth A
1906 Borden, George Edward....Adamsville, R. I.
1893 Bossidy, John Collins.....Boston. 419 Boylston S
1911 Bostick, Warren John.....West Springfield.
376 Main S
1897 Bottomley, John Taylor...Boston. 165 Beacon St.
1897 Boucher, George Alphonse..Brockton. 20 Clinton A
1905 Boutwell, Horace Keith....Boston. 416 Marlboro' S
1913 Bouvier, Charles William..Holyoke. 251 Maple St.
1912 Bowditch, Harold.....Brookline. Office, Boston.
520 Commonwealth A
1903 Bowditch, Henry Ingersoll..Boston. 86 Bay State Rd
1881 Bowditch, Vincent Yardley..Boston. 506 Beacon St.
1913 Bowen, Enos Emanuel....East Boston.
209 Sumner
1912 Bowen, James Francis....Amherst. 6 Maple Av.
1887 Bowen, John Templeton...Boston. 14 Marlboro' S
1867 Bowen, Seabury Warren Fall River. 217 Second
†1905
1912 Bowers, George Francis Worcester. 574 Main St.
Haskell
1879 Bowers, Walter Prentice...Clinton. 264 Chestnut S
1891 Bowker, Everett M.....Brookline. 322 Harvard
1894 Bowles, George Hall.....Plymouth, N. H.
2 Russell
1892 Bowman, Fred Raymond...Boston. 211 Huntington.
1914 Boyd, Francis Peter.....Springfield. 310 Bridge
1896 Boyd, James Van Wagner..Springfield. 137½ State
1885 Boyd, Samuel George.....San Francisco, Calif.
133 Geary
1911 Boyden, Arthur Henry....Worcester. 893 Main S
1901 Boyer, Joseph Napoleon...Springfield. 577½ Main
1906 Boyle, Jeremiah Joseph...Cambridge.
1129 Cambridge

03 Boyle, John Francis.....Lowell. 32 Whipple St.
 02 Brace, George Wells.....Westfield. 5 Woronoco Av.
 56 Brackett, Elliot Gray.....Boston. 166 Newbury St.
 95 Bradford, Cary Carpenter.....Southbridge. 67 Main St.
 73 Bradford, Edward Hickling Boston. 133 Newbury St.
 78 Bradford, Henry Wolfborough, N. H.
 Withington
 53 Bradley, Charles Seymour..Roxbury (Boston).
 71 Walnut Av.
 14 Brady, Cecil Norbert.....Lowell. St. John's Hosp.
 06 Brady, Frank Robert.....Lowell. 8 Merrimack St.
 56 Brady, James Francis.....Boston. 599 Tremont St.
 08 Brady, Joseph Edward.....Brockton. 231 Main St.
 12 Brady, William Francis.....Holyoke. 348 Dwight St.
 71 Bragdon, George Albert Middletown, Conn.
 †1906
 90 Bragdon, Horace Elwood...East Boston (Boston).
 7 Central Sq.
 04 Bragg, Frank Adelbert....Foxborough. School St.
 02 Bragg, Leslie Raymond....Webster. 124 Main St.
 54 Brainerd, John Bliss.....Brookline. Office, Boston.
 419 Boylston St.
 07 Brainerd, Walter Scott....Bradford (Haverhill).
 Office, Haverhill.
 91 Merrimack St.
 09 Brant, Austin.....Boston. 483 Beacon St.
 03 Brayton, Roland Walker...Dorchester (Boston).
 693 Washington St.
 09 Brearton, Edward John...Dorchester (Boston).
 1015 Dorchester Av.
 55 Breck, Samuel.....Roxbury (Boston).
 Office, Boston.
 238 Newbury St.
 01 Breed, Nathaniel Perkins..Douglaston, Long Island.
 N. Y.
 01 Breed, Nathaniel Pope....Lynn. 9 Washington Sq.
 10 Breen, James Henry.....Hudson. 164 Main St.
 11 Bremer, John Lewis.....Boston. 295 Marlboro' St.
 7 Brennan, John Joseph....Worcester. 390 Main St.
 13 Breslin, John George.....Charlestown (Boston).
 19 Monument Av.
 11 Bresnahan, John Francis..Roxbury (Boston).
 Office, Boston.
 69 Newbury St.
 14 Bresnihan, Frank Nesdel...Cambridge. 252 Harvard St.
 03 Brewster, George Boston. 213 Beacon St.
 Washington Wales
 08 Brickett, Beatrice Hannah..Newton Highlands (New-
 ton). 68 Floral St.
 07 Brickley, William Joseph...Charlestown (Boston).
 Office, Boston. Relief
 Station, Haymarket Sq.
 2 Brides, Arthur Edward....Brockton. 101 Main St.
 09 Bridgman, Burt Nicholas...Jamaica Plain (Boston).
 4 Greenough Av.
 03 Briggs, Charles Albert....Freetown.
 06 Briggs, Edward Cornelius..Chestnut Hill (Newton).
 Office, Boston.
 129 Marlboro' St.
 03 Briggs, Frederick Boston.
 Melancthon 536 Commonwealth Av.
 09 Briggs, Lloyd Vernon.....Boston. 64 Beacon St.
 03 Brigham, Clarence Sumner..Leominster. 61 Pearl St.
 5 Brigham, Edwin Howard...Brookline. Office, Boston.
 8 The Fenway
 2 Brigham, Francis Gorham..Boston. 355 Marlboro' St.
 7 Brigham, Fred Clayton...Springfield. 192 Walnut St.
 7 Bright, James Cooper.....Fall River.
 710 South Main St.
 6 Brindisi, Rocco.....Boston. 149 Richmond St.
 8 Broderick, Frank Patrick..Jamaica Plain (Boston).
 67 South St.
 1 Broderick, Thomas Boston. 483 Beacon St.
 Frederick
 3 Broga, William Wallace...Springfield. 820 State St.
 4 Brodrick, James Patrick..Jamaica Plain (Boston).
 †1914 815 Center St.
 6 Brooks, Edith May.....Roxbury (Boston).
 53 Parker Hill Av.
 4 Brooks, Lawton Stickney..Springfield.
 †1913 128 Chestnut St.

1890 Brooks, William Allen....Boston. 167 Beacon St.
 1893 Brough, David Dandie....Boston. City Hall Annex.
 1899 Broughton, Arthur Nicholson Jamaica Plain (Boston).
 10 Roanoke Av.
 1878 Broughton, Henry White...Jamaica Plain (Boston).
 7 Lakeville Pl.
 1896 Brousseau, William Gilbert..Cambridge. 2222 Mass. Av.
 1911 Brown, Arthur Aloysius....Millbury. 19 Maple St.
 1910 Brown, Arthur Linwood...Winchester. Office, Boston.
 419 Boylston St.
 1912 Brown, Chester Perkins...Cambridge. 89 Hancock St.
 1894 Brown, Daniel Joseph....Springfield. 317 Main St.
 1905 Brown, Edward Manning..Springfield. 182 State St.
 1898 Brown, Edward Wells....Northampton. 39 Main St.
 1861 Brown, Francis Henry Boston. Office, 15 State St.
 †1910
 1883 Brown, Frank Byron.....Dorchester (Boston).
 529 Washington St.
 1884 Brown, George Artemas...Barre. Broad St.
 1904 Brown, George Christopher..Worcester. 1 Trumbull Sq.
 1914 Brown, Herbert Rutherford..Jamaica Plain (Boston).
 47 Hampstead Road.
 1911 Brown, Joseph.....Worcester.
 28 Providence St.
 1907 Brown, Lloyd Thornton...Boston. 372 Marlboro' St.
 1869 Brown, Marshall Lebanon Address unknown.
 †1908
 1893 Brown, Martin Millard....North Adams.
 112½ Main St.
 1901 Brown, Melvin James.....Address unknown.
 1873 Brown, Orland Jonas.....North Adams. 112 Main St.
 1902 Brown, Percy.....Boston. 155 Newbury St.
 1914 Brown, Ralph Neally.....Malden. Malden Hospital.
 1906 Brown, Wallace Everett...North Adams. Berkshire
 Hills Sanatorium.
 1888 Brown, Wilfred Gardner...Plymouth. 4 North St.
 1908 Brown, William James....Boston. 1080 Boylston St.
 1909 Brown, William John.....Reading. 18 Salem St.
 1914 Browne, William Edward..Boston.
 366 Commonwealth Av.
 1881 Browne, William Tyler....Norwich, Conn.
 275 Broadway.
 1898 Brownrigg, Albert Edward..Nashua, N. H. Highland
 Springs Sanitarium.
 1888 Brownrigg, John Sylvester..Roxbury (Boston).
 16 Delle Av.
 1895 Bruce, Daniel Angus.....Atlantic (Quincy).
 1896 Bruce, John Angus.....Everett. 699 Broadway.
 1913 Brunelle, Arthur Lord....New Bedford.
 1498 Acushnet Av.
 1898 Brunelle, Pierre.....Lowell.
 10 East Merrimack St.
 1893 Bryant, Alice Gertrude....Boston. 502 Beacon St.
 1906 Bryant, Clarence Edmund..Hyde Park (Boston).
 101 Highland St.
 1901 Bryant, Frederick.....Worcester. 778 Main St.
 1892 Bryant, Giles Waite.....West Somerville (Somer-
 ville). 36 College Av.
 1911 Bryant, John.....Cohasset. Office, Boston.
 338 Marlboro' St.
 1902 Bryant, John Edmund....Haverhill.
 50 Merrimack St.
 1874 Bryant, Lewis Lincoln....Cambridge. 930 Mass. Av.
 1909 Bryant, Mason David....Lowell. 8 Merrimack St.
 1887 Bryant, William Sohler...New York, N. Y.
 41 East 33d St.
 1909 Bucholz, Carl Hermann....Cambridge. Office, Boston.
 139 Beacon St.
 1893 Buck, Augustus Walker...Fall River. 252 Pine St.
 1914 Buck, Clifton Leon.....Danvers. 35 High St.
 1882 Buck, Howard Mendenhall..Boston. 857 Beacon St.
 1899 Buck, Maurice Allen.....Billerica.
 1874 Buckingham, Edward Boston. 342 Marlboro' St.
 Marshall
 1914 Buckley, Daniel Joseph....Arlington. 240 Broadway.
 1913 Buckley, George Ambrose..Brockton. 28 Main St.
 1886 Buckley, Philip Townsend..South Boston (Boston).
 399A Broadway.
 1906 Buckley, William Stephen..Brighton (Boston).
 253 Market St.

- 1911 Budington, Harold Fairchild Springfield. 1019 State St.
 1899 Buchler, George Van Buskirk Cambridge. Office, Boston.
 1075 Boylston St.
 1903 Bufford, John Henry.....Brookline. Office, Boston.
 390 Commonwealth Ave.
 1898 Buffum, Herbert Edwin....Somerville. 129 Perkins St.
 1874 Bulfinch, George Greenleaf.Brookline. 526 Harvard St.
 1902 Bulkeley, Frank Stedman..Ayer. Washington St.
 1889 Bullard, John Thornton....New Bedford.
 428 County St.
 1880 Bullard, William Norton...Boston. 89 Marlboro' St.
 1907 Burbeck, Edward Kimball..Salem. 245 Lafayette St.
 1906 Burgess, Charles James....Lawrence. 37 Whitman St.
 1905 Burke, Francis Ramon.....Quincy. 1220 Hancock St.
 1910 Burke, George Herbert.....Springfield.
 36 Beaumont St.
 1892 Burke, James Joseph.....Easthampton. 10 Center St.
 1896 Burke, Michael Francis....Natick. 12 West Central St.
 1901 Burke, Walter Thomas....Medford. 112 Salem St.
 1899 Burke, William Henry, Jr..Cambridge. 2 Bond St.
 1902 Burley, Benjamin Thomas..Worcester. 25 High St.
 1909 Burlingham, Louis Herbert..Boston.
 Peter Bent Brigham Hosp.
 1906 Burnett, Francis Lowell....Boston. 82 Beacon St.
 1897 Burnett, Frank Hollis....Brookton. 153 Main St.
 1894 Burnham, Elmond Arthur..Boston. 154 Huntington Av.
 1901 Burnham, Joseph Forrest..Lawrence. 99 Bradford St.
 1905 Burnham, Parker.....Gloucester. 37 Pleasant St.
 1899 Burns, Frederick Stanford..Boston. 237 Marlboro' St.
 1892 Burns, Hiram Hutchins....Plymouth. 9 North St.
 1912 Burns, Newell Bly.....North Reading.
 State Sanatorium.
 1886 Burrage, Walter Lincoln....Boston. 282 Newbury St.
 1913 Burrell, Harry Cutter.....Medford. 235 Salem St.
 1907 Burrows, Marion Cowan...Lynn. 68 Ocean St.
 1911 Burt, Edward Walter.....Westport. Office, New Bedford.
 321 Union St.
 1885 Burt, Frank Leslie.....Boston. 528 Mass. Av.
 1885 Burton, Stephen Casper....Pittsfield.
 47 West Housatonic St..
 1909 Bush, Arthur Dermont....Burlington, Vt.
 14 Hungerford Terrace.
 1874 Bush, John Standish Foster..Winchendon.
 Toy Town Tavern.
 1901 Bushnell, Edward Henry...Quincy. 566 Washington St.
 1906 Bushold, Fred George....Lawrence. 60 Saunders St.
 1899 Butler, Charles Shorey....Boston. 257 Newbury St.
 1897 Butler, George Edward....Fall River.
 674 South Main St.
 1892 Butler, John Edward.....Dorchester (Boston).
 64 Monadnock St.
 1905 Butler, Patrick Francis....Brookline. Office, Boston.
 520 Beacon St.
 1903 Butler, Richard Bernard...Fall River. 80 Columbia St.
 1897 Butler, William Hodnett...Fall River. 234 Bedford St.
 1904 Butterfield, George Kittredge Worcester. State Hosp.
 1884 Buzzell, Daniel Thompson..Wilmington.
 1892 Bychow, Victor.....Malden. 226 Cross St.
 1895 Byrne, Charles Armstrong..Hatfield. 46 Main St.
 1912 Byrne, Claudius James....Worcester. 1056 Main St.
 1904 Byrnes, Harry Francis....Springfield. 4 Chestnut St.
- C**
- 1898 Cabot, Hugh.....Boston. 87 Marlboro' St.
 1892 Cabot, Richard Clarke....Boston. 1 Marlboro' St.
 1911 Cady, Frederic Benjamin Cambridge.
 Mooers 1 Waterhouse St.
 1886 Cahill, Charles Sumner....Cambridge. 311 Prospect St.
 1910 Cahill, John William....Worcester. 390 Main St.
 1908 Cahill, Thomas Joseph....Cambridge.
 1305 Cambridge St.
 1894 Cain, William George.....Nashua, N. H.
 35 Concord St.
 1903 Caisse, George Emile.....Lowell. 724 Merrimack St.
 1909 Calitri, Constant.....Lawrence. 99 Jackson St.
 1891 Calkin, Barry Howes.....Stellarton, N. S.
 1894 Calkins, Cheney Hosmer....Springfield. 383 Union St.
 1903 Calkins, Irving Romaro....Springfield. 299 Central St.
 1862 Calkins, Marshall †1893 Springfield. 14 Maple St.
 1884 Call, Emma Louise.....Boston. 9 Mass. Av.
 1873 Call, Norman †1910 Brookline. 61 Sewall Av.
 1908 Callahan, Henry Alphonsus..Jamaica Plain (Boston).
 336 Center St.
 1887 Callanan, Sampson Aloysius..Roxbury (Boston).
 109 Warren St.
 1911 Camfill, Robert Emmet....Springfield.
 148 Chestnut St.
 1858 Campbell, Benjamin.....East Boston (Boston).
 Franklin 21 White St.
 1902 Canedy, Charles Francis....Greenfield. 17½ Federal St.
 1872 Canedy, Francis Joel †1913 Shelburne Falls
 (Shelburne). 60 Bridge St.
 1909 Canfield, William Chase...Address unknown.
 1912 Canney, Ellen Rose.....New Bedford.
 552 County St.
 1904 Cannon, Walter Bradford..Cambridge. Office, Roxbury
 (Boston). 240 Longwood Av.
 1913 Capeles, Thomas Francis...Haverhill. 120 Emerson St.
 1898 Carden, Charles James....Haverhill.
 276 Washington St.
 1908 Carey, Bernard William...Fitchburg. 6 Prichard St.
 1868 Carleton, Charles Greenleaf..Lawrence. 301 Essex St.
 1896 Carleton, Dudley.....Springfield. 137½ Temple St.
 1898 Carleton, Ralph.....Springfield. 10 Temple St.
 1906 Carley, Frederic James....North Attleborough.
 1 Church St.
 1909 Carley, Margaret Elizabeth..Boston. 483 Beacon St.
 1911 Carlisle, Frank Henry....Foxborough. State Hosp.
 1908 Carlton, Frank Carr.....Salem. 16 North St.
 1906 Carney, Patrick Joseph....Worcester.
 626 Southbridge St.
 1910 Carr, Arthur Wyman.....Bridgewater. 76 South St.
 1912 Carr, Christopher James...Saxonville (Framingham).
 26 Central St.
 1909 Carr, Gladys Lydia.....Lynn. 125 Ocean St.
 1906 Carr, Percy Whitman.....Hyde Park (Boston).
 16 Neponset Bl.
 1909 Carroll, Charles Curtis....Dorchester (Boston).
 10 Esmond St.
 1911 Carroll, Henry Gerald....Peabody. Office, Salem.
 304 Essex St.
 1905 Carroll, John Joseph.....Holyoke. 120 Chestnut St.
 1899 Carroll, John Philip.....Woburn. 16 Winn St.
 1914 Carroll, Michael James....Lenox. Main St.
 1888 Carroll, Thomas Francis...Lowell. 219 Central St.
 1897 Carruth, Sidney Stetson...Dorchester (Boston).
 713 Dudley St.
 1913 Carvell, Hanford.....Gloucester.
 1050 Washington St.
 1914 Carvill, Alphonso Holland..Somerville.
 28 Highland Av.
 1905 Carvill, Lizzie Maud.....Somerville. Office, Boston.
 101 Newbury St.
 1902 Cary, Foster Harrington...Address unknown.
 1912 Casey, John Francis.....Allston (Boston).
 94 Franklin St.
 1908 Casselberry, Clarence Brookline. Office, Boston.
 Marmaduke 1075 Boylston St.
 1912 Cassels, Louis Raymond...Worcester. 47 Pleasant St.
 1908 Cassidy, James Joseph....Lowell.
 10 East Merrimack St.
 1913 Castleman, Philip.....Roxbury (Boston).
 41 Ruggles St.
 1914 Caswell, Bartram Horace..Somerville. 196 Broadway.
 1910 Caswell, Walter Emery....Campello (Brookton).
 1147 Main St.
 1903 Caulfield, Thomas Edward..Woburn. 14 Church Av.
 1897 Cavanagh, Charles Russell..Dorchester (Boston).
 19 Richmond St.
 1905 Cavanaugh, Thomas Holyoke. 245 Maple St.
 Edward
 1905 Celce, Frank Frederick....Holyoke. 264 Maple St.
 1905 Celce, Jean Henriette....Holyoke. 264 Maple St.
 1913 Chace, Fenner Albert.....Fall River.
 373 North Main St.
 1888 Chadbourne, Arthur Boston. 193 Beacon St.
 Patterson
 1895 Chadwick, Henry Dexter...Westfield.
 State Sanatorium
 1906 Chalmers, Hattie Elizabeth..Marlborough.
 64 West Main St.

008	Chalmers, Robert.....	Woburn.	49 Pleasant St.	1901	Clark, Ezra Warren †1914	Brockton.	3 Garden Road.
014	Chamberlain, Harold	Worcester.	City Hospital.	1913	Clark, Frank Robinson.....	Newtonville	(Newton).
	Augustus						227 Walnut St.
072	Chamberlain, Myron Levi..	Boston.	19 Exeter St.	1901	Clark, Frederick Timothy...	Westfield.	80 Elm St.
095	Chamberlain, William	Rutland.		1893	Clark, George Henry.....	Holyoke.	441 High St.
	Eugene			1905	Clark, George Oliver.....	Boston.	142 Beacon St.
007	Champion, Merrill Edwin...	Greenville, N. C.	Box 107.	1911	Clark, Harry Ainsworth....	Port Limon, Costa Rica.	
005	Chandler, Clarence Luther...	Fitchburg.	15 Adams St.			The Hospital.	
083	Chandler, Henry Beckles...	West Newton (Newton).		1897	Clark, James Colby Dorr...	Medford.	4 Washington St.
		Office, Boston.		1906 } Clark, John Donovan.....	Andover.	111 Main St.	
			34½ Beacon St.	1913 }			
073	Chandler, Luther Graves	Townsend.	Main St.	1886	Clark, Joseph Payson.....	Boston.	71 Marlboro' St.
	†1912			1880	Clark, Julius Stimpson	Melrose.	109 Myrtle St.
088	Chandler, Norman Fitch...	Medford.	82 High St.			†1911	
011	Chandler, Thomas Evans...	Boston.	19 Bay State Rd.	1889	Clark, Leonard Brown.....	Waverley (Belmont).	
073 }	Channing, Walter.....	Brookline.	Boylston St				36 Sycamore St.
078 }			and Chestnut Hill Av.	1897	Clark, Mary Wilson.....	Medford.	4 Washington St.
098	Chapin, Clifford Samuel...	Great Barrington.		1892	Clark, Sidney Avery.....	Northampton.	124 Main St.
			321 Main St.	1903	Clark, Thomas Francis.....	Taunton.	62 Broadway.
091	Chapin, Delia Lucretia....	Springfield.	313 State St.	1910	Clark, Webster Kimball....	Greenfield.	6 Franklin St.
006	Chapin, Laurence Dudley...	Springfield.	20 Maple St.	1907	Clark, William Irving, Jr...	Worcester.	37 Pearl St.
085	Chapin, Walter Henry.....	Springfield.	675 State St.	1914	Clark-MacLeod, Emily.....	Boston.	260 Newbury St.
099	Chapman, Charles	Springfield.	174 State St.	1901	Clarke, Genevieve.....	Cambridge.	825 Mass. Av.
	Ratchford			1911	Clarke, Harry Carver.....	Lynn.	
013	Charbonneau, Noe Napoleon.	Grafton.	Fisherville P. O.				180 South Common St.
086	Charles, Orlando	Bryantville (Pembroke).		1904	Clarke, Inez Louise.....	Cambridge.	825 Mass. Av.
	Warrington			1888	Clarke, Israel James.....	Haverhill.	112 Emerson St.
000	Charteris, Mary Alena.....	Worcester.	167 Pleasant St.	1910	Clarke, Joshua Williams...	Attleborough.	48 Bank St.
008	Chase, Charles Otis.....	Watertown.		1902	Clarke, Louis Henry.....	Holyoke.	282 Maple St.
			51 Mt. Auburn St.	1913	Clarke, Thomas Greene....	Langley, Wash.	Anthes Av.
000	Chase, Edwin Llewellyn...	Shrewsbury.		1897	Cleary, James.....	Cambridge.	770 Mass. Av.
008	Chase Gilman Leeds.....	Clinton.	215 High St.	1914	Cleary, Robert Emmett....	Holyoke.	1049 Dwight St.
007	Chase, Harrison Ayer.....	Brockton.	231 Main St.	1901	Cleaves, Ezra Eames.....	Rockport.	27 Main St.
009	Chase, Heman Baker.....	Hyannis (Barnstable).		1895	Cleaves, Frederick Henry..	Brookline.	Office, Boston.
		Main St.					287 Atlantic Av.
086	Chase, Heman Lincoln....	Brookline.	126 Harvard St.	1908	Cleaves, Helen Frances Taft.	Palmer.	
002	Chase, Henry Melville....	Boston.	409 Marlboro' St.			Monson State Hospital	
067	Chase, Horace.....	Boston.	Equitable Bldg.	1880	Cleaves, James Edwin.....	Medford.	8 Salem St.
055	Chase, Ira Eaton	†1897 Haverhill.	59 Park St.	1874	Clement, George Wilmot...	Roxbury (Boston).	
022	Chase, Walter Greenough...	Boston.	279 Marlboro' St.				275 Warren St.
014	Cheever, Austin Walter....	Mattapan (Boston).		1902	Clement, Merton Wallace..	Worcester.	811 Main St.
			1531 Blue Hill Av.	1911	Cleveland, Heber Howe....	Wellesley Hills, Office,	
086	Cheever, Clarence Alonzo...	Mattapan (Boston).				Boston.	205 Beacon St.
			1531 Blue Hill Av.	1875	Cliff, Leander Albert.....	Boston.	427 Shawmut Av.
002	Cheever, David.....	Boston.	355 Marlboro' St.	1901	Cloudman, Harry Radcliffe.	Brockton.	33 Clinton Av.
058	Cheever David Williams	Boston.	557 Boylston St.	1911	Clymer, George.....	Boston.	
	†1907						366 Commonwealth Av.
091	Chenery, William Elisha...	Boston.	222 Huntington Av.	1914	Coates, Edward Augustus...	Winthrop.	6 Herman St.
086	Cheney, Frederick Edward...	Concord.	Office, Boston.	1892	Cobb, Albert Crocker.....	Marion.	Front St.
			126 Commonwealth Av.	1895	Cobb, Carolus Melville....	Lynn.	Office, Boston
005	Chesley, Alfred Ervan....	Lawrence.	181 Essex St.				419 Boylston St.
095	Chicoine, Isidore	Lynn.	206 Lewis St.	1907	Cobb, Chester Thompson...	Easthampton.	Office,
	Hermanigilde					Boston.	419 Boylston St.
076	Chipman, William Reginald.	Chelsea.	44 County Road.	1893	Cobb, Farrar.....	Boston.	
	†1915						28 Commonwealth Av.
006	Chisholm, Miles Dudley...	Westfield.	128 Elm St.	1889	Cobb, Frederic Codman....	Boston.	11 Marlboro' St.
054	Choate, David	†1899 Salem.	35 Norman St.	1912	Cobb, Gardner Nathan....	Boston.	North End Park.
006	Choate, Horace Henry.....	Gloucester.	80 Middle St.				U. S. S. "Ranger."
003	Cholerton, Herbert.....	West Somerville (Somerville).	94 College Av.	1897	Cobb, Oliver Warren.....	Easthampton.	59 Main St.
002	Christian, Henry Asbury...	Boston.	252 Marlboro' St.	1914	Coburn, Harry Ray.....	Tewksbury.	
008	Christiernin, Charles	East Orange, N. Y.	Office,			State Infirmary.	
	Leonard	New York, N. Y.		1904	Coburn, Horace Fordyce...	Lowell.	9 Central St.
			1 Madison Av.	1898	Cochran, William James...	Natick.	50 West Central St.
095	Church, Charles Albert....	Millbury.	Elm St.	1914	Cochrane, Robert Carlisle.	Boston.	270 Bay State Rd.
012	Church, Claude Henry....	Address unknown.		1905	Cockett, Marguerite	New York, N. Y.	
006	Churchill, John Larling...	Plymouth.	63 Court St.			Standish	35 East 62nd St.
095	Clute, Arthur Lambert....	Boston.	350 Marlboro' St.	1895	Codman, Ernest Amory....	Boston.	227 Beacon St.
088	Cilley, Daniel Plummer...	Westborough.		1912	Cody, Edmond Francis....	New Bedford.	
			30 East Main St				105 South 6th St.
013	Claffy, John McMahon....	Springfield.	172 Main St.	1912	Cody, Harry Clinton.....	Lawrence.	539 Broadway.
091	Clancy, William Henry....	East Cambridge		1885	Coffin, Arthur Baylies.....	Dorchester (Boston).	Office
		(Cambridge).	80 Otis St.			Boston.	159 Devonshire St.
000	Clap, Edmund Wright.....	Boston.		1907	Coffin, Frank Herbert.....	Haverhill.	91 Emerson St.
			390 Commonwealth Av.	1896	Coffin, Rockwell Augustus.	Boston.	234 Clarendon St.
003	Clapp, Arthur Martin....	Springfield.	16 Chestnut St.	1887	Cogan, Joseph Ambrose....	Boston.	419 Boylston St.
002	Clapp, Frank Horace.....	North Grafton (Grafton).		1892	Cogswell, George Proctor...	Cambridge.	18 Garden St.
098	Clark, Albert Ulysses	Westborough.		1896	Cogswell, William.....	Haverhill.	
	Franklin		10 Parkman St.				151 Merrimack St.
090	Clark, David	†1908 Springfield.	26 Maple St.	1910	Colberg, Peter Albert.....	Worcester.	17 Stebbins St.
001	Clark, Edward James.....	Lowell.	219 Central St.	1897	Colburn, Harry Hayford...	Boston.	103 Mt. Vernon St.

- 1912 Cole, Arthur Judson.....Holbrook.
North Franklin St.
- 1892 Collier, Lawrence Henry Jamaica Plain (Boston).
Goodwin 212 South St.
- 1910 Collins, Joseph Daniel.....Northampton. 90 Main St.
- 1903 Collins, Richard.....Waltham. 837 Main St.
- 1899 Collins, William James....Northampton. 90 Main St.
- 1908 Collins, William Morris....Lowell. 22 Central St.
- 1881 Colt, Henry.....Pittsfield. 193 South St.
- 1879 Comey, Perley Pierce.....Augusta, Ga.
Walton Way and Telfair St.
- 1883 Conant, William Merritt...Boston.
486 Commonwealth Av.
- 1913 Condrick, John Joseph....Brockton. 68 Main St.
- 1883 } Cone, Dwight Eleazer... { Fall River.
1900 } 938 South Main St.
- 1913 Conley, Brainard Francis..Malden. 203 Main St.
- 1909 Conlin, Robert Emmett....Woburn. 353 Main St.
- 1906 Conlon, Frank Aloysius....Lawrence. 301 Essex St.
- 1891 Connell, Arthur Irving....Fall River.
456 South Main St.
- 1909 Connelly, John Edward....Brookline. 156 Cypress St.
- 1902 Comer, Homer Leigh.....Haverhill. 85 Emerson St.
- 1897 Connor, Charles Frank....New Bedford.
11 North Orchard St.
- 1910 Connor, George James....Haverhill. 50 Merrimack St.
- 1902 Conro, Arthur Clifton.....Attleborough.
15 Mechanic St.
- 1906 Conroy, Edward Cornelius..Andover. Office.
Lawrence. 263 Essex St.
- 1895 Conroy, Peter John.....Everett. 355 Broadway.
- 1879 Cook, Charles Henry.....Natick. 35 West Central St.
- 1914 Cook, James Henry.....Braintree.
346 Washington St.
- 1914 Cook, John William.....Mansfield.
114 North Main St.
- 1905 Cook, Philip Howard.....Worcester. 771 Main St.
- 1893 Cook, Snow Parker Gloucester. 132 Main St.
Freeman
- 1895 Cooke, George Andrews....Montague.
- 1905 Cooley, Abbott Lathrop....Chicopee Falls (Chicopee).
130 Broadway.
- 1885 Coolidge, Algernon.....Brookline. Office, Boston.
613 Beacon St.
- 1904 Coolidge, Frederic Shurtleff..Pittsfield. 472 West St.
- 1893 Coolidge, John Nelson.....New York, N. Y.
1 Madison Av.
- 1901 Coolidge, Sumner.....Middleborough. Lakeville
State Sanatorium.
- 1898 } Coon, George Bailey.....East Walpole (Walpole).
1903 }
- 1912 Cooney, Margaret Blanche..Haverhill. 67 Winter St.
- 1909 Cooney, Michael Edward....Northampton. 39 Main St.
- 1892 Cooper, Almon.....Brookline. 67 Marion St.
- 1878 Copeland, Horatio Franklin..Whitman.
1913 } 532 Washington St.
- 1914 Coppinger, Sarah Elizabeth..Needham. 299 Highland Av.
- 1906 Corbett, Jeremiah Joseph..Malden. Office, Boston.
520 Beacon St.
- 1911 Corcoran, George Bartlett..West Springfield.
30 Park St.
- 1909 Corcoran, John Gilbert....Hamilton.
- 1905 Corey, Frederick Hall.....Rockland. 361 Union St.
- 1907 Coriat, Isador Henry.....Boston. 416 Marlboro' St.
- 1911 Cornforth, Herbert Fitchburg.
Huskisson 17 Westminster St.
- 1913 Cornish, Solon Washington..Everett. 64 Corey St.
- 1907 Cornwall, Andrew Payne....Brookline. Office, Boston.
535 Beacon St.
- 1904 Cort, Parker Martin.....Springfield. 691 State St.
- 1906 } Costello, John Henry... { Dorchester (Boston).
1913 } 68 Pleasant St.
- 1905 Coté, Honoré Joseph.....Boston. 23 Warren Av.
- 1912 Cotter, Timothy Francis....Haverhill.
298 Washington St.
- 1897 Cotton, Frederic Jay.....Boston.
520 Commonwealth Av.
- 1913 Couch, Mary Catherine....Chicago, Ill.
2551 North Clark St.
- 1895 Coues, William Pearce....Boston. 31 Mass. Av.
- 1895 Couillard, Pierre Leonard..Manchaug (Sutton).
1892 Councilman, William Boston.
Thomas Office, Roxbury (Boston).
210 Longwood Av.
- 1911 Coupal, James Francis....Roxbury (Boston).
Office, Boston.
1091 Boylston St.
- 1914 Coursey, Frank Rudolph...Boston. 802 Tremont St.
- 1893 Courtney, Joseph William..Boston. 436 Marlboro' St.
- 1914 Courtney, Thomas Joseph..Waltham. 26 Common St.
- 1892 Cousins, Nicholas William..Waltham. 17 Crescent St.
- 1872 Cowles, Edward 1910 Plymouth. 8 Sever St.
- 1886 Cowles, Frank Augustus....Beverly. 276 Cabot St.
- 1901 Cowles, Frederick West Brookfield.
Waterman
- 1910 Cowles, William Lee.....Boston. 497 Beacon St.
- 1887 Cowles, William Norman...Cataumet (Bourne).
- 1907 Cox, Ann Caroline.....Boston. 70 Huntington Av.
- 1914 Cox, Oscar Francis.....Boston. 338 Mass. Av.
- 1905 Cox, Simon Francis.....Mattapan (Boston).
Office, Boston.
926 Tremont Bldg.
- 1913 Cox, Stanley Cullen.....Holyoke. 242 Maple St.
- 1901 Coyne, Thomas Joseph....Roxbury (Boston).
636 Dudley St.
- 1914 Crabtree, Ernest Granville..Boston. 4 Walnut St.
- 1892 Craig, Daniel Hiram.....Address unknown.
- 1905 Craig, William Gibson.....Springfield. 317 Main St.
- 1889 Craigin, George Arthur....Boston. 18 Hereford St.
- 1891 Cram, John Wesley.....Colrain.
- 1896 Crandell, Arthur Richmond..Taunton. 48 Church Green.
- 1899 Crandon, Le Roi Goddard..Boston.
366 Commonwealth Av.
- 1906 Crane, Bayard Taylor.....Rutland. Maple Av.
- 1909 Crane, Clarence.....Boston. 224 Huntington Av.
- 1899 } Crawford, Francis Xavier. { Boston.
1907 } Deer Island Hospital.
- 1910 Crawford, Frank Wallis....Holbrook.
North Franklin St.
- 1885 Crawford, Sarah Marcy Newton Center (Newton).
1911 } 194 Ward St.
- 1914 Creamer, William Henry....Fall River. 466 N. Main St.
- 1908 Creely, Oscar Slade.....Watertown.
63 Mt. Auburn St.
- 1906 Cregg, Francis Aloysius....Lawrence. 477 Essex St.
- 1907 Crispo, Peter Timothy.....Fall River. 439 Bedford St.
- 1909 Crittenden, George Alanson..Huntington.
- 1900 Crittenden, Samuel Wright..Dorchester (Boston).
State Hospital
- 1894 Croacher, Anna Wood.....New Bedford. 51 Fifth St.
- 1892 Crocker, Benton Pulsifer....Foxborough. South St.
- 1866 Crocker, John Myrick.....Cambridge.
335 Harvard St.
- 1904 Crocker, Louis Allen.....Brewster.
- 1887 Crocker, Susan Elizabeth Los Angeles, Calif.
1901 } 849 W. 34th St.
- 1891 Crockett, Eugene Anthony..Boston. 298 Marlboro' St.
- 1898 Croft, Benjamin Pomeroy..Bernardston.
Office, Greenfield.
17 Federal St.
- 1913 Croke, Louis Ward.....Dorchester (Boston).
22 Mather St.
- 1914 Cronin, Herbert Joseph....Cambridge. 69 Concord St.
- 1896 Cronin, Henry William....Worcester. 31 Trumbull St.
- 1899 Cronin, Michael John.....Roxbury. Office, Boston.
520 Beacon St.
- 1898 Cronin, Thomas Joseph....Worcester. 49 Pleasant St.
- 1909 Crosbie, Arthur Hallam....Boston. 260 Clarendon St.
- 1903 Crosby, Leander Marshall..Wakefield. Office, Boston.
419 Boylston St.
- 1910 Crosby, Walter Hiram.....Brighton (Boston).
305 Fanueil St.
- 1912 Cross, Albert Elmer.....Worcester. 390 Main St.
- 1899 Cross, William Patrick....South Boston (Boston).
491 Broadway
- 1897 Crossman, Frank Albert....Dorchester (Boston).
677 Dudley St.
- 1881 Croston, John Francis.....Haverhill. 83 Emerson St.
- 1885 Crowell, Samuel.....Dorchester (Boston).
8 Monadnock St.
- 1897 Crowley, Jeremiah Francis..Adams. 15 Park St.

011 Cuddy, James Francis....Athol. 585 Main St.	1904 Dailey, Edward Joseph....Somerville. 46 Bow St.
887 Culbertson, Emma Valeria Boston. 33 Newbury St. Pintard Bicknell	1913 Dalton, Charles Howard...Brookline. 405 Harvard St.
899 Cummin, John White.....Boston. 9 Mass. Av.	1908 Dalton, George Frederick...Springfield. 6 Maple St.
001 Cummings, Alvah Cochran.Newton. 337 Washington St.	1882 Daly, Bernard Thomas....Roxbury (Boston). 320 Dudley St.
011 Cummings, Dana Frank....Cherryfield, Me.	1905 Daly, Jeremiah James.....North Andover. 8 North Main St.
876 Cummings, Edwin Francis.Revere. Office, Boston. 43 State House.	1898 Daly, Timothy Joseph.....Lawrence. 62 Bradford St.
004 Cummings, John Joseph....Worcester. 53 Pleasant St.	1896 Daly, William Joseph.....Boston. 31 Mass. Av.
001 Cummings, Morton Everett.Malden. 358 Pleasant St.	1902 Dame, Fred Russell.....South Braintree (Brain- tree). 1010 Washington St.
888 Cummings, Mott Alvah....Winchester. 69 Church St.	1895 Damon, Arthur Llewellyn..North Wilbraham (Wilbraham). Chapel St.
005 Cummins, Loretta Joy....Boston. 536 Commonwealth Av.	1906 Dana, Harold Ward.....Brookline. Office, Boston. 483 Beacon St.
894 Cumston Charles Greene...Geneva, Switzerland. 3 Rue Bellot.	1891 Dane, John.....Jamaica Plain. Office, Boston. 29 Marlboro' St.
013 Cunningham, Allen Rowe..Boston. City Hospital.	1906 Danforth, Harland Abbott..Cliftondale (Saugus). 276 Lincoln Av.
003 Cunningham John Boston. 46 Gloucester St. Henry, Jr.	1878 Daniels, Edwin Alfred....Boston. 302 Newbury St.
014 Cunnningham, Joseph Cambridge. 959 Mass. Av. Henry	1908 Darling, Arthur Edwin....Lynn. 12 Broad St.
877 Cunningham, Thomas Cambridge. 847 Mass. Av. Edward	1895 Darling, Charles Balfour...Roxbury (Boston). Office, Boston. 419 Boylston St.
014 Cunningham, Thomas Cambridge. 1010 Mass. Av. Edward, Jr.	1894 Darling, Eugene Abraham.Cambridge. 138 Brattle St.
005 Curley, Clarence Proctor...Provincetown. Commercial St.	1890 Darrah, Rufus Elmer.....Newport, R. I. 10 Bull St.
014 Curran, John Francis.....Worcester. 223 Salisbury St.	1907 Dascombe, Otho Lee.....Waltham. 259 Moody St.
005 Curran, Simon Francis....Dorchester (Boston). 104 Norfolk St.	1900 Daudelin, Simeon Alphonse.Worcester. 11 Elm St.
873 } Currie, John Zebulon....Cambridge. 907 Mass. Av.	1871 Davenport, Bennett Watertown. Office, Boston. Franklin. †1910 161 Tremont St.
012 } Currier, Cyrus Richardson.Sandwich. Main St.	1877 Davenport, Francis Henry.Boston. 390 Commonwealth Av.
000 Currier, William Eugene...Leominster. 87 Merriam Av.	1887 Davenport, James Henry...Providence, R. I. 210 Benefit St.
890 Currier, William Hale....Pittsfield. 69 Linden St.	1906 Davidson, Henry James Springfield. 26 Maple St. Duff
898 Curry, Edmund Farnham..Fall River. 499 Hanover St.	1891 Davidson, Kallman Meyer..Roxbury (Boston). Office, Boston. 31 McLean St.
008 Curry, Ernest Francis....Sagamore (Bourne). Keith Block.	1895 Davis, Bessie Delano.....Cambridge. 21 Magazine St.
009 Curtis, Charles Leverett...Salem. 78 Federal St.	1911 Davis, Charles Allen.....South Dennis (Dennis). 1899 Davis, Charles Henry.....South Hamilton (Hamilton).
887 Curtis, Francis George....Chestnut Hill (Newton). 399 Hammond St.	1888 Davis, Ella Maxfield.....Holyoke. 188 Chestnut St.
010 Curtis, Harlan Fuller.....East Longmeadow (Long- meadow). South Main St.	1906 Davis, Ernest Leland.....Springfield. 106 State St.
890 Curtis, Henry Fuller.....Somerville. 145 Perkins St.	1907 Davis, Frank Albert.....Boston. Hotel Brunswick.
899 Curtis, William Goodwin...Wollaston (Quincy). 10 Grand View Av.	1913 Davis, Frederick Durand...Westfield. 57 North Elm St.
006 Cushing, Arthur Alden....Brookline. 108 Marion St.	1914 Davis, Henry Levi.....Lynn. 12 Van Buren Terr.
875 Cushing, Ernest Watson...Roxbury (Boston). Office, Boston. 168 Newbury St.	1899 Davis, Lincoln.....Boston. 205 Beacon St.
013 Cushing, Harvey.....Brookline. Office, Roxbury (Boston). Peter Bent Brigham Hospital.	1906 Davis, Minot Flagg.....Boston. 520 Beacon St.
881 Cushing, Hayward Warren.Boston. 70 Commonwealth Av.	1899 Davis, Percy Guy.....Deerfield.
887 Cushman, Andrew Bernard.South Dartmouth (Dartmouth). 46 Dudley St.	1880 Davis, Samuel Thomas....Vineyard Haven(Tisbury). 1897 Davis, Stephen Rich.....Lynn. 188 Chestnut St.
882 Cushman, George Thomas..Roxbury (Boston). 46 Dudley St.	1913 } Davis, William Horace..{Dorchester (Boston). 23 Beaumont St.
011 Cushman, Howard Lewis..Methuen. 28 Annis St.	1905 Davison, Arthur Howard...Dorchester (Boston). 564 Washington St.
006 Cusick, Lawrence Francis..Nahant. Office Boston. 99 Newbury St.	1914 Dawson, Roger Paul.....Boston. 82 St. James Av.
898 Cusick, Thomas Francis....Taunton. 126 Weir St.	1911 Day, Charles Orrin.....Hingham. Main St.
898 Cutler, Charles Norton....Chelsea. 309 Washington Av.	1892 Day, Clarence Currier....Newburyport. 21 Titcomb St.
872 Cutler, Elbridge Gerry....Boston. 214 Beacon St.	1905 Day, Hilbert Francis.....Boston. 657 Boylston St.
012 Cutler, George David.....Boston. 483 Beacon St.	1914 Deacy, John Joseph.....Lawrence. 301 Essex St.
014 Cutler, Myron Fred.....Southbridge. 39 Hamilton St.	1893 Deal, Edward Edwin.....Brookline. 147 Winthrop Road.
002 Cutter, Arthur Hardy.....Lawrence. 333 Broadway. 566 Cutter, Ephraim †1898 West Falmouth (Falmouth).	1892 Deal, George Francis.....Malden. 807 Salem St.
008 Cutter, Irving Taylor.....Winchester. 31 Church St.	1896 Dean, Ralph Denniston...Taunton. 152 High St.
887 Cutts, Harry Madison.....Brookline. 105 Aspinwall Av.	1866 Deane, Asabel Sumner Taunton. 60 Broadway. †1902
006 Cyr, Emile Edouard.....Lawrence. 81 Bradford St.	1887 Deane, Wallace Harlow...Springfield. 137½ State St.
005 Dacey, Cornelius Joseph...Brockton. 12 Cottage St.	1894 Deans, Herbert Clair.....Roxbury (Boston). 27 Maywood St.
002 Dadmun, Eliza Josephine..Allston (Boston). 1376 Commonwealth Av.	1907 Dearborn, George Van Ness..Cambridge. Office, Boston. 416 Huntington Av.
	1908 Dearborn, Henry Follansby..Lawrence. 193 Garden St.
	1906 Dearborn, Henry Hale....Becket.
	1872 Dearborn, John George Charlestown (Boston). †1907 2 Wood St.
	1893 Dearing, Henry Lincoln....Braintree.
	1881 DeBlois, Thomas Amory...Boston. 523 Newbury St.
	1914 Deering, Charles Fuller....Danvers. 57 Elm St.
	1905 Deering, George Edwin....Worcester. 131 Pleasant St.

D

- 1890 Dehn, Edward William....New Bedford. 23 Linden St.
1886 DeLand, Charles Airmet...Warren. 7 Quabog St.
1898 De Lange, Charles Petit...Lynn. 540 Western Av.
1884 Delahanty, William Joseph.Worcester. 5 Trumbull Sq.
1885 } Delano, Samuel.....Boston. 39 Newbury St.
1912 }
1893 De Lue, Frederick Needham. Office, Boston.
Spaulding 99 Newbury St.
1911 Dempsey, James Edward...Newton.
395 Washington St.
1895 Denig, Blanche Alpine....Boston. 541 Boylston St.
1911 Dennen, Ralph Waite....Waltham. 258 Moody St.
1900 Dennett, Alonzo Gustin...Lowell. 40 Riverside St.
1897 Dennett, Charles Augustus.Arlington. 754 Mass. Av.
1898 Dennett, Daniel Clement...Winchester.
7 Washington St.
1906 Denning, Edward John...South Boston (Boston).
577 Broadway.
1909 Denning, Frederic Joseph..South Boston (Boston).
216 Broadway.
1901 Denning, William Edward..Worcester. 63 Pleasant St.
1896 Dennison, Archibald Sayre.Lynn. 7 Franklin St.
1895 Denny, Francis Parkman...Brookline. 111 High St.
1904 DeNormandie, Robert Boston. 355 Marlboro' St.
Laurent
1910 Derby, Charles Arthur....New Bedford.
194 Purchase St.
1903 Derby, George Strong.....Boston. 7 Hereford St.
1892 Derby, William Parsons...Cambridge. 120 Pearl St.
1914 Dervin Laurence James....Somerville.
218 Highland Av.
1911 Desmond, Clarence Francis.Waltham. 552 Main St.
1909 Devenny, Joseph Henry....Dorchester (Boston).
39 Florida St.
1904 Devere, Fred Hewitt.....Sterling. Waushacum Av.
1884 Devine, William Henry....South Boston (Boston).
595 Broadway.
1903 Devlin, Peter Clarke.....Lynn. 784 Western Av.
1886 Dewey, Charles Gipson....Dorchester (Boston).
44 Alban St.
1906 Dewing, Louis Alexander..Boston. 215 Huntington Av.
1893 Dewis, John William.....Brookline. Office, Boston.
69 Newbury St.
1913 DeWolf, Charles Wentworth.Tewksbury.
State Infirmary.
1887 Dexter, Franklin.....Beverly. Office, Boston.
247 Marlboro' St.
1905 Dexter, Fred Fay.....Springfield. 2 Temple St.
1907 Dickinson, Gyrde Willie...Everett. Office, Boston.
673 Boylston St.
1898 Dickson, Richard Ensign...Holyoke. 598 Dwight St.
1910 Dillon, Michael John.....Springfield. 182 State St.
1894 Dion, Thomas Joseph.....West Quincy (Quincy).
59 Cross St.
1912 Disbrow, Edward Perry....Worcester. City Hospital.
1901 Dix, George Alfred.....Worcester. 105 Pleasant St.
1911 Dixon, Arthur.....Boston. 360 Mass. Av.
1871 Dixon, Lewis Seaver.....Boston. 232 Clarendon St.
1881 Dixon, Robert Brewer....Boston. 232 Clarendon St.
1911 Dobson, William Marshall..Dorchester (Boston).
State Hospital.
1896 Dodd, Isaac Spencer Finney Pittsfield. 24 North St.
1912 Dodd, John Edward.....Holliston. Office, Framing-
ham. 33 Union Av.
1914 Dodd, Walter James.....Boston. 205 Beacon St.
1900 Dodge, Arthur Malcolm....Boston. 483 Beacon St.
1907 Dodge, George Francis....Wilmington.
1886 Dodge, William Wooldredge.Boston. 228 Mass. Av.
1882 Doggett, Frederic Fobes...South Boston (Boston).
805 Broadway.
1885 Dolan, William Andrew....Fall River.
546 South Main St.
1899 Dole, Charles Frederick....Sharon. 2 North Main St.
1904 Donahue, Francis William.Greenfield. 178 Main St.
1889 Donahue, Hugh.....Haverhill. 21 White St.
1895 Donahue, William Francis.Cambridge. 2294 Mass. Av.
1903 Donaldson, James Frank...Salem. 32 Lynde St.
1901 Donlan, Charles Edwin...Boston. Long Isl. Hosp.
1908 Donnell, Herbert Anthony..Medford. 374 Main St.
1893 Donnelly, John Bernard....West Gardner (Gardner).
1885 Donoghue, Daniel Francis..Holyoke. 240 Maple St.
1894 Donoghue, Francis Dennis..Boston. 861 Beacon St.
1904 Donoghue, John Joseph...Worcester. 8 Vernon St.
1908 Donohue, Jeremiah Joseph.Worcester. 48 Vernon St.
1887 } Donovan, Michael Ricard. { Lynn.
1904 } 101 North Common St.
1911 Donovan, Thomas Roche...Fitchburg. 40 Fitchard St.
1910 Doonan, Henry Edward....South Hadley Falls.
(South Hadley).
1880 Dorcey, James Edmund....Boston. 172 Harrison Av.
1900 Dorgan, Joseph Aloysius..Lawrence. 477 Essex St.
1909 Dorion, Kinton.....Lawrence. 129 Concord St.
1885 Dorr, Charles Alonzo.....Hingham. 304 Main St.
1901 Doucett, Frederick Luke...East Weymouth
(Weymouth).
1905 Douglas, Archibald John...Westfield. 38 Elm St.
1865 Douglass, John Abbott Amesbury. 167 Main St.
†1906
1899 Dow, David Crooker.....Cambridge. 6 Hilliard St.
1887 Dow, Edmund Scott.....Allston (Boston).
18 Harvard Av.
1911 Dow, Frank Edward.....Northampton.
16 Center St.
1897 Dow, George Farwell.....Reading. 20 Woburn St.
1882 Dow, George William....Lawrence.
80 East Haverhill St.
1871 Dow, James Arthur †1913 Belmont. Payson Rd.
1914 Dowling, John Joseph.....Boston. City Hospital.
1895 Downey, Charles John....Springfield. 156 Main St.
1908 Downey, Henry Arthur....Mittineague (West Spring-
field). 388 Westfield St.
1906 Downing, Andrew Francis..Cambridge. 501 Huron Av.
1904 Downing, Charles Harland.Everett. 59 Corey St.
1897 Downing, Franklin Chace..Lanesborough.
1909 Drake, Richard Alvin.....West Medford (Medford).
6 Irving St.
1883 Drake, William Abram....North Weymouth
(Weymouth).
1901 Draper, Alexis Lumb.....Dorchester (Boston).
1107 Washington St.
1885 Drew, Charles Aaron.....Worcester. City Hospital.
1904 Drew, Frederick Prescott..East Dedham (Dedham).
1895 Drew, Marla Emma.....Atlantic (Quincy).
39 Newbury Av.
1902 Dreyfus, Edna Weil.....Brookline. 30 Amory St.
1865 Driver, Stephen William Cambridge. 5 Farwell Pl.
†1915
1897 Drohan, James Henry.....Brockton. 204 Main St.
1888 Drummey, Nicholas Daniel.Dorchester (Boston).
533 Washington St.
1904 Drury, Dana Warren.....Roxbury (Boston).
Office, Boston.
1906 Dubois, Eoline Church....Springfield. 10 Chestnut St.
1901 Duckering, Florence West..Boston. 483 Beacon St.
1900 Duckering, William West..Dorchester (Boston).
2 Warner St.
1908 Ducey, William Dwyer.....Brockton. 13 Clinton Av.
1894 Dudley, Augustus William..Cambridge. 1740 Mass. Av.
1891 Duff, John.....Charlestown (Boston).
5 Dexter Row
1886 Duggan, John Thomas....Worcester.
226 Southbridge St.
1906 Dunbar, Francis Herbert..Mansfield. P. O. address
Boston. 46 Cornhill
1893 Dunbar, Frank Collins....Roxbury (Boston).
9 Beethoven St.
1914 Dunham, Adeline Frances..Cambridge. 881 Mass. Av.
1913 Dunham, Harry Bartlett...Marion.
1894 Dunham, Henry Bristol...Glen Gardner, N. J.
N. J. Sanatorium
1903 Dunn, Charles Hunter....Boston. 178 Marlboro' St.
1894 Dunn, Charles Stein.....Haverhill. 133 Main St.
1874 Dunn, William Aloysius...Boston. 139 Beacon St.
1913 Dunn, William Ambrose...Boston. 154 Richmond St.
1909 Dunphy, Henry Ambrose...Thorndike (Palmer).
1885 Durant, Charles Edwin...Haverhill. 105 Emerson St.
1879 Durell, Thomas Moulton...Somerville.
131 Highland Av.
1866 Durgin, Samuel Holmes....Duxbury. Millbrook P. O.
1867 Dutton, Charles.....Wakefield. 33 Avon St.
1906 Dutton, Julius Maltby....Westfield. 108 Elm St.

02 Dutton, Richard.....Wakefield. 33 Avon St.
 90 Dwight, Edwin Welles.....Boston. 19 Pearl St.
 96 Dwight, Henry Leonard....San Diego, Calif.
 1234 Weatherly St.
 79 Dwight, James.....Falmouth. Office, Boston.
 225 Beacon St.
 90 Dwyer, John Edward.....Cambridge. 878 Mass. Av.
 01 Dwyer, John Edward, Jr....Cambridge. 878 Mass. Av.
 01 Dwyer, William Joseph....Cambridge. 118 Pearl St.
 82 } Dyer, Ebenezer Alden...{ Whitman.
 04 } 506 Washington St.

E

84 Eames, George Franklin...Boston. 249 Newbury St.
 12 Earle, George Henry.....Boston. 1138 Boylston St.
 01 Eastman, Alexandre Crane.Springfield. 6 Chestnut St.
 06 Eastman, Theodore Jewett.South Berwick, Me.
 Office, Boston.
 71 Marlboro' St.
 00 Easton, Elwood Tracy....Boston. 209 Newbury St.
 14 Eaton, Henry Douglas....Stockbridge.
 06 Eaton, William Edward....U. S. Navy.
 79 Eaton, Wyllis Gilbert....Lowell. 417 Middlesex St.
 66 Eddy, George Stetson †1909.Newton. 73 Sargent St.
 61 Edes, Robert Thaxter †1912.Reading. Office, Boston.
 419 Boylston St.
 13 Edsall, David Linn.....Milton. Office, Boston.
 80 Marlboro' St.
 67 Edson, Ptolemy O'Meara Roxbury (Boston).
 †1904 36 Elm Hill Av.
 94 Edwards, William Lothrop.Boston. 33 Gloucester St.
 97 Egan, John Joseph.....Gloucester. 52 Pleasant St.
 06 Ehrenfried, Albert.....Boston.
 362 Commonwealth Av.
 87 Ehrlich, Henry.....Boston.
 172 Commonwealth Av.
 13 Eisner, Maurice Soloman...Pittsfield. 86 North St.
 74 Ela, Walter †1914 Cambridge. 13 Ash St.
 07 Elder, Fred Orestes.....Wakefield. 22 Chestnut St.
 85 Eldridge, David Gorham...Dorchester (Boston).
 15 Monadnock St.
 06 Ellam, Herbert William....Gardner. 29 Parker St.
 14 Elliot, Henry Whitney....Belchertown.
 00 Elliot, Henry Libbey.....Salem. 84 Washington Sq.
 77 Elliot, John Wheelock....Boston. 124 Beacon St.
 03 Elliott, Alfred.....Middleborough. Rock St.
 00 Elliott, Richard Andrew...Avon.
 73 Elliott, Russell Dunson....Boston. 154 Richmond St.
 08 Ellis, Arthur Henry.....Greenfield. 317 Federal St.
 05 Ellis, Edward Keith.....Hyde Park (Boston).
 Office, Boston.
 232 Clarendon St.
 80 Ellis, Frederic Warren....Monson. Oak St.
 73 Ellis, George Livingstone Middleborough.
 †1913 135 Center St.
 99 Ellis, William Raymond...Brookline.
 116 Thorndike St.
 99 Ellsworth, Samuel Walker.Quincy. 18 Russell Pk.
 99 Ely, Richard Skinner.....West Townsend
 (Townsend).
 13 Ely, Theodore Williams...Cambridge. Office, Boston.
 374 Marlboro' St.
 03 Emerson, Benjamin Worcester. 37 Pearl St.
 Kendall
 73 Emerson, Edward Waldo...Concord. Lowell Road.
 99 Emerson, Ernest Benjamin.Bridgewater. State Farm.
 93 Emerson, Francis Patten...Brookline. Office, Boston.
 520 Commonwealth Av.
 03 Emerson, George Edward...South Weymouth (Wey-
 mouth). Office, Boston.
 543 Boylston St.
 93 Emerson, Herbert Clark...Springfield. 177 State St.
 11 Emerson, Nathaniel Waldo.Boston.
 295 Commonwealth Av.
 00 Emerson, William Robie Boston. 657 Boylston St.
 Patten
 00 Emery, George Edwin.....Worcester. 280 Lincoln St.
 00 Emery, William Campbell...Dorchester (Boston).
 430 Columbia Road

1870 Emery, William Henry...Roxbury (Boston).
 109 Warwick St.
 1905 Emmons, Arthur Dover. Office, Boston.
 Brewster, 2d 86 Bay State Road.
 1904 England, Albert Charles...Pittsfield. 124 North St.
 1912 English, Martin Joseph....Boston. City Hospital.
 South Dept.
 1888 Ensworth, William Howard.East Boston (Boston).
 40 Princeton St.
 1894 Erb, Theodore Charles....Boston. 374 Marlboro' St.
 1893 Ermentrout, Sallie Justina.Address unknown.
 1881 Ernst, Harold Clarence....Jamaica Plain (Boston).
 Office, Roxbury (Boston).
 240 Longwood Av.
 1899 Estabrook, Charles Taylor..Worcester. 390 Main St.
 1912 Eustis, Richard Spelman...Boston. 329 Beacon St.
 1903 Evans, Albert.....Boston. 409 Marlboro' St.
 1904 Evans, Miner Harlow Dorchester (Boston).
 Amos, Jr. Office, Boston.
 138 Newbury St.
 1867 Eveleth, Edward Smith East Gloucester
 †1908 (Gloucester).
 20 Highland St.
 1908 Eveleth, Samuel Chester...Marblehead.
 137 Washington St.
 1899 Everett, Eugene Ellsworth.Boston. 427 Marlboro' St.
 1905 Everett, Frederick Luther..Springfield. 10 Chestnut St.
 1880 Everett, Oliver Hurd.....Worcester. 53 Pearl St.
 1865 Everett, Willard Newton Upper Falls.
 Shepard †1905 20 Summer St.
 1900 Ewing, George Winburn...Middleton. Office, Peabody.
 32 Main St.

F

1906 Fabyan, Marshal.....Boston.
 379 Commonwealth Av.
 1892 Fahey, James Charles....Northampton.
 136 Main St.
 1899 Fair, John Francis.....East Cambridge
 (Cambridge).
 390 Cambridge St.
 1901 Fair, Robert Patrick.....Boston. 481 Beacon St.
 1899 Fairbanks, Arthur Willard.Brookline. Office, Boston.
 591 Beacon St.
 1897 Fales, Alonzo Cartland....Malden. 76 Pleasant St.
 1912 Fallon, Joseph Francis....Brookline. 1 Kendall St.
 1891 Fallon, Michael Francis...Worcester. 390 Main St.
 1880 Farlow, John Woodford....Boston. 234 Clarendon St.
 1895 Farnham, John Marshall Worcester. 58 Pleasant St.
 Willoughby
 1874 Farr, Edwin Lawson.....Roxbury (Boston).
 3 Highland St.
 1908 Farr, Irvin Harris.....Holyoke. 179 Chestnut St.
 1894 Farrington, Leander Morton.Arlington Heights.
 102 Florence Av.
 1893 Faulkner, Herbert Kimball.Keene, N. H. 78 West St.
 1891 Faulkner, William Edward.Boston. 290 Marlboro' St.
 1905 Faunce, Calvin Barstow, Jr.Jamaica Plain (Boston).
 Office, Boston.
 95 Newbury St.
 1905 Faxon, Eudora Winifred...Wrentham. State School.
 1892 Faxon, Eudora Meade Franklin. New Ray Block.
 †1912
 1907 Faxon, Nathaniel Wales...Stoughton. 4 Walnut Av.
 1907 Faxon, William Otis.....Stoughton. 4 Walnut Av.
 1897 Fay, Frank Gleason.....Worcester. 390 Main St.
 1875 Fay, James Monroe.....Northampton. 71 King St.
 1911 Fay, Joseph Henry.....Melrose.
 6 West Emerson St.
 1888 Fay, William Eastman....Brookline. Office, Boston.
 366 Commonwealth Av.
 1904 Feeley, Charles Philip....Cambridge. 1039 Mass. Av.
 1914 Feeley, Walter Clarence....Cambridge. 265 Western Av.
 1906 Felch, Carrie Innes.....Boston. 355 Mass. Av.
 1913 Felch, George Alfred.....Boston. 591 Tremont St.
 1906 Felch, Lewis Perley.....Boston. 355 Mass. Av.
 1912 Fennelly, Daniel John....Fall River. 52 Linden St.
 1903 Fennessey, John Francis...Dorchester (Boston).
 15 Adams St.
 1905 Fenwick, George Benson...Chelsea. 259 Chestnut St.

- 2000 Ferguson, Edward Hugh...Wrentham. Franklin St.
1901 Ferguson, Robert Henry...East Orange, N. J.
1873 Fernald, Charles Augustus Boston.
1903 Fernald, Guy Goodwin...Concord Junction
(Concord). Assabet Av.
1895 Fernald, Walter Elmore...Waverley (Belmont).
1904 Ferrin, William Warren...Haverhill. 77 Emerson St.
1906 Field, Henry Martyn...Norwood.
1884 Field, James Brainerd...Lowell. 329 Westford St.
1904 Field, Martin Thomas...Salem. 23 Winter St.
1900 Finch, George Hardy...Springfield. 310 Main St.
1907 Finegan, Daniel Joseph...Gloucester. 83 Middle St.
1904 Finkelstein, Harry...Boston. 342 Hanover St.
1912 Finkelstein, Nathan...Pittsfield. 86 North St.
1911 Finlayson, Alan Daniel...Warren, Pa. State Hosp.
1890 Finn, Edward William...Dedham. 5 Franklin Sq.
1913 Finnegan, Francis Lowell.
Augustine 10 East Merrimack St.
1913 Finnegan, Philip Joseph...Salem. 92½ Essex St.
1914 Finnerty, Charles William...Somerville. 761 Broadway.
1884 Finnigan, Patrick Joseph...Cambridge.
1412 Cambridge St.
1904 Fischbein, Louis...Boston. 382 Newbury St.
1897 Fish, Ernest Clifford...Melrose. 11 Wyoming Av.
1897 Fish, John Euclid...Canton.
Mass. Hospital School.
1904 Fish, Louis...Fitchburg. 25 Myrtle Av.
1873 Fisher, Chester Irving...New York, N. Y.,
1925 7th St.
1902 Fisher, Irving Jewell...West Newton (Newton).
79 Chestnut St.
1910 Fishman, Maurice...Lowell. 40 Middlesex St.
1888 Fisk, Arthur Lyman...New York, N. Y.
41 West 50th St.
1886 Fiske, Eustace Lincoln...Fitchburg. 20 Prichard St.
1891 Fitz, George Wells...Boston. P. O. address,
Peconic, N. Y.
1913 Fitz, Reginald...Boston.
P. B. Brigham Hospital.
1898 Fitzgerald, Clara Pauline...Worcester. 137 Pleasant St.
1892 Fitzgerald, James Bernard...Boston. 393 Mass. Av.
1906 Fitzgerald, John Joseph...Haverhill. 111 Emerson St.
1903 Fitzpatrick, John Joseph...Charlestown (Boston).
50 High St.
1910 Fitz-Simmons, Henry Jamaica Plain (Boston).
Joseph Office, Boston.
272 Newbury St.
1902 Flagg, Elisha...Boston.
190 Commonwealth Av.
1909 Flagg, Harry Howard...Charlestown (Boston).
30 Elm St.
1913 Flaherty, Edward James...Tewksbury.
State Infirmary.
1914 Fleet, William Ernest...Cambridge. 9 Columbia St.
1914 Fleming, Edward Rahn...Medford. 322 Boston Av.
1904 Fleming, Patrick Joseph...Cambridge. 411 Huron Av.
1903 Fleming, Peter Joseph...Mattapan (Boston).
1258 Blue Hill Av.
1902 } Fletcher, Robert Swan...Oxford. Charlton St.
1909 }
1893 Fletcher, Robert Whitney...South Boston (Boston).
783 Broadway.
1905 Flett, Penelope McNaughton...Waverley (Belmont).
1887 Flint, Omar Alpha } 1914 Dracut Center (Dracut).
1882 Flood, Everett...Palmer.
Monson State Hospital.
1910 Flournoy, Thomas...Pittsfield. 742 North St.
1905 Floyd, Cleveland...Boston. 246 Marlboro' St.
1893 Flynn, John Joseph...Pittsfield. 183 North St.
1902 Flynn, John Joseph...Worcester. 10 Grand St.
1883 Fogerty, William Clemmons...Worcester. 98 Chandler St.
1880 Fogg, Irving Sylvester...Norwood.
767 Washington St.
1913 Foley, Thomas Brinsley...Boston. 85 Westland Av.
1894 Foley, Timothy John...Worcester. 28 Portland St.
1892 Follett, Ammi Ward...Somerville. 359 Medford St.
1910 Forbes, Alexander...Milton. Harland St.
- 1893 Ford, John Francis...Roslindale (Boston).
S Walter St.
1914 Forster, John Ferguson Holyoke. 277 Suffolk St.
Cooke
1901 Forster, Robert William...Lawrence. 279 Broadway
1895 Fosgate, Elmer Gilman...Ashburnham.
1883 Fokett, George Mason...Worcester. Stark Rd.
1914 Foss, George Herbert...Springfield.
530 Summer St.
1909 Foss, Ralph Emery...Peabody. 97 Main St.
1884 Foster, Charles Chauncy...Cambridge. 8 Elmwood Av.
1904 Foster, Ellis Edwin...New Bedford.
271 Union St.
1883 Foster, Horace Kendall...Peabody. 2 Park St.
1890 } Fournin, Edmund Randolph } Waltham. 54 Grant St.
1900 } Peaslee }
1911 Fox, Michael Bernard...Worcester. 6 Coral St.
1887 Fox, William Yale...Taunton. 26 Second St.
1894 Frame, Joseph...Rockland. 39 Webster St.
1891 Francis, Carleton Shurtleff...Brookline. 26 Davis Av.
1887 Francis, George Hills...Brookline. 295 Walnut St.
1911 Frank, Morris...Roxbury (Boston).
106 Humboldt Av.
1902 Franz, Adolph...Holyoke. 266 Maple St.
1911 Fraser, Archibald McKay...Boston. 69 Newbury St.
1880 Fraser, John Chisholm...East Weymouth.
(Weymouth)
1913 Fraser, William Leslie...Lynn. 812 Summer St.
1911 Frawley, William Thomas...Pittsfield. 184 North St.
1905 Freedman, Louis Mark...Dorchester (Boston).
Office, Boston.
419 Boylston St.
1894 Freeman, Franklin Willard...Lynnfield.
P. O. Wakefield, R. F. D.
1900 French, Charles Ephraim...Lowell. 9 Central St.
1887 French, Charles Lindol...Clinton. 271 High St.
1893 French, George Henry...Winthrop. 300 Pleasant St.
1892 French, John Marshall...Milford. 2 South Main St.
1911 French, Ralph Winward...Fall River. 151 Rock St.
1914 Friedman, Benjamin...Boston. 43 McLean St.
1901 Friedman, Leo Victor...Newton Center. Office,
Boston. 425 Marlboro' St.
1910 Friedman, Nathan...Boston.
1038 Washington St.
1897 Frost, Edward Clayton...Campello (Brockton).
68 Chestnut St.
1910 Frost, Henry Pinckney...Dorchester (Boston).
State Hospital.
1906 Frothingham, Channing, Jr...Boston. 395 Marlboro' St.
1887 Frye, Edmund Bailey...Boston. 21 Chestnut St.
1909 Fuller, Andrew Howard...Cushman (Amherst).
1903 Fuller, Charles Benjamin...Waltham. 826 Main St.
1890 Fuller, Daniel Hunt...Philadelphia, Pa.
19th and Market St.
1907 Fuller, Ernest Page...Lawrence. 301 Essex St.
1894 Fuller, Frederick Henry...Walpole.
1892 Fuller, James Robert...Andover. 68 Central St.
1898 Fullerton, Walter Wilson...Brockton. 106 Main St.
1911 Funnell, Wilfred Goldwin...Cambridge. Office, Boston.
156 Huntington Av.
1911 Furealow, Charles Springfield. 591¾ Main St.
Lawrence
- G
1905 Gabler, George Lewis...Holyoke. 149 Chestnut St.
1905 Gafney, Harry Dabol...Ware. 45 Main St.
1909 Gage, Arthur Tenney...Melrose Highlands (Mel-
rose). 250 Franklin St.
1906 Gage, Fred Leon...Lowell. 9 Central St.
1886 Gage, Homer...Worcester. 72 Pearl St.
1884 Gage, James Arthur...Lowell. 64 Central St.
1907 Gahan, Patrick Francis...Medford. 19 Washington St.
1891 Gale, George Washington...East Saugus (Saugus).
68 Lincoln Av.
1901 Gale, Harold Adams...Winchester. Office, Boston.
111 Newbury St.
1906 Gallagher, John Henry Chicopee. 105 Center St.
Connaughton
1912 Gallagher, Nicholas Malden. 221 Highland Av.
Ambrose

- 1907 Gallagher, Thomas Morton. Newton. 34 Channing St.
 1906 Galligan, Edward Joseph. Taunton. 10 North Pleasant St.
 1882 Galligan, Eugene Thomas. Roxbury (Boston). 84 Warren St.
 1888 Gallison, Ambrose John. Franklin. 259 Dean Av.
 1910 Gallison, James Murry. Boston. 407 Marlboro' St.
 1893 Gallivan, William Joseph. South Boston (Boston). 743 Broadway.
 1883 Galloupe, Charles William. Boston. 188 Commonwealth Av.
 1904 Galvin, Augustus Hughes. Springfield. 423 Main St.
 1901 Galvin, William. Blackinton (Williamstown).
 1887 Gannett, William Whitworth. Boston. 274 Marlboro' St.
 1903 Gardner, Archibald Robert. Lowell. 64 Central St.
 1881 Gardner, Clarence. Northampton. 78 Main St. Rhodolphus
 1912 Gardner, Edwin Daniels. New Bedford. 57 Campbell St.
 1900 Gardner, Harrie Milton. Cambridge. 128 Magazine St.
 1913 Garipay, Ellsworth Peter. Lynn. 147 Franklin St.
 1875 Garland, Albert Stone. Gloucester. 18 Pleasant St. †1908
 1874 Garland, George Minot. Boston. 227 Newbury St.
 1905 Garland, Roy. Gloucester. 17 Pleasant St.
 1895 Gates, Ernest A. Springfield. 49 North Main St.
 1899 Gavin, John Harrison. Roxbury (Boston). 346 Dudley St.
 1864 Gavin, Michael Freebern. South Boston (Boston). 546 Broadway.
 1905 Gay, Clarence Bertram. Fitchburg. 47 Day St.
 1903 Gay, Fritz Walter. Malden. 105 Salem St.
 1868 Gay, George Washington. Chestnut Hill (Newton). Office, Boston. 665 Boylston St.
 1903 Gay, Herbert Seymour. Boston. 1087 Boylston St.
 1893 Gay, Warren Fisher. Boston. 416 Marlboro' St.
 1914 Gaylord, James Frederick. Springfield. 700 State St.
 1902 Gêneroux, Joseph Olivier. Webster. 18 Main St.
 1907 George, Ariel Wellington. Cambridge. Office, Boston. 259 Beacon St.
 1897 George, Arthur Phillips. Haverhill. 143 Main St.
 1908 George, Frank William. Worcester. 6 High St.
 1908 George, Leslie Handlin. Bradford (Haverhill). 118 Main St.
 1911 Gerber, Isaac. Providence, R. I. 259 Benefit St.
 1901 Germain, Harry Homer. Boston. 416 Marlboro' St.
 1882 Gerould, Joseph Bowditch. North Attleborough. 34 High St.
 1896 } Gerstein, Maurice. { Roxbury (Boston). 493 Warren St.
 1913 } 33 Broadway.
 1885 Getchell, Albert Colby. Worcester. 6 Linden St.
 1912 Ghoreyeb, Albert Alphonso. Boston. 483 Beacon St. Wood
 1886 Gibbs, Linnaeus Victor. Huntington. †1907
 1883 Gibbs, Locero Jackson. Chicopee Falls (Chicopee). †1915
 1907 Giblin, Francis Joseph. Dorchester (Boston). 33 Adams St.
 1909 Giddings, Harold Girard. Allston (Boston). Office, Boston. 28 Commonwealth Av.
 1869 Gifford, Benjamin Dods. Chatham. Cross St. †1913
 1886 Gifford, John Henry. Fall River. 320 Rock St.
 1908 Giguere, Alfred Joseph. North Adams. 62 Summer St.
 1887 Gilbert, John. Fall River. 254 Locust St.
 1898 Gilbert, Louis Whitmore. Brookline. 1402 Beacon St.
 1906 Gile, Frank Herbert, Jr. Braintree. 420 Washington St.
 1892 Gile, John Morton. Hanover, N. H. 1 Maynard St.
 1914 Gillilan, Donald Robert. Worcester. State Asylum.
 1888 Gillard, Arthur Ernest. Lowell. 32 John St.
 1905 Gillis, John Ewen. West Somerville (Somerville). 1097 Broadway.
 1906 Gilman, Charles Sleeper. Brookline. Office, Boston. 419 Boylston St.
 1872 Gilman, Eugene Albert. Dorchester (Boston). †1907 677 Dudley St.
 1909 Gilman, Florence. Northampton. 33 Elm St.
 1887 Gilman, Warren Randall. Worcester. 10 Oxford St.
 1906 Gilpatrick, Roy Hawkes. Boston. 1069 Boylston St.
 1878 Ginn, David Richard. Dennisport (Dennis).
 1906 Giroux, Charles. Three Rivers (Palmer).
 1906 Glass, James. Framingham. 61 Concord St.
 1896 Glendenning, Robert. Manchester. 8 Church St. Thompson
 1912 Glunts, David. Roxbury (Boston). 165 Harold St.
 1898 Goddard, Henry Edward. Brockton. 21 Goddard Rd.
 1906 Goddard, Samuel Warren. Brockton. 21 Goddard Rd.
 1905 Goddu, Louis Adalore. Boston. 407 Marlboro' St. Oliver
 1914 Godfrey, Henry White. Auburndale (Newton). 14 Hancock St.
 1901 Godfrey, Joseph Witter. Swampscott. Office, Lynn. 209 Union St.
 1904 Godfrey, Thomas Francis. Springfield. 104 Union St.
 1900 Golden, Lazarus. Boston. 69 Chambers St.
 1906 Goldsburly, Paul Williams. Warwick.
 1888 Goldthwait, Joel Ernest. Boston. 372 Marlboro' St.
 1893 Goldthwaite, Seth Vale. Boston. 532 Mass. Av. †1914
 1906 Good, Frederick Leo. Brookline. Office, Boston. 95 Newbury St.
 1892 Goodale, Joseph Lincoln. Boston. 258 Beacon St.
 1904 Goodall, Harry Winfred. Boston. 205 Beacon St.
 1881 Goodell, George Zina. Salem. 62 Federal St.
 1906 Goodell, William. Springfield. 6 Chestnut St.
 1890 Goodman, Samuel. Roxbury (Boston). 148 Townsend St.
 1902 Goodridge, Frederick James. Cambridge. 5 Appian Way
 1892 Goodwin, James Joseph. Clinton. 202 Church St.
 1861 } Goodwin, Richard James { Malden.
 1885 } Plummer †1903 { 481 Pleasant St.
 1910 Gookin, Edward Richard. Dorchester (Boston). 801 Columbia Road.
 1871 Gordon, John Alexander. Quincy. 1200 Hancock St.
 1896 Gordon, Stephen Masury. Fall River. 318 Prospect St.
 1905 } Gorham, George Hartley { West Roxbury (Boston).
 1910 } 14 Hastings St.
 1896 Goss, Arthur Vincent. Taunton. State Hospital.
 1869 Goss, Francis Webster. Sacramento, Calif. 1014 Yardley Av.
 1907 Gould, Chester Harlow. Braintree. 400 Washington St.
 1888 Gould, Clarke Storer. Norwood. 486 Washington St.
 1899 Grady, Patrick Anthony. Clinton. 104 School St. Salmon
 1913 Grady, Thomas Francis. Lynn. 540 Summer St.
 1873 Graham, Douglas. Brookline. Office, Boston. Hotel Brunswick
 1910 Graham, Jay Percy. Springfield. 137 1/2 State St.
 1911 Grainger, Edward John. Winthrop. 304 Winthrop St.
 1882 Grainger, William Henry. East Boston (Boston). 408 Meridian St.
 1901 Grandison, Wilfred George. Charlestown (Boston). 65 High St.
 1903 Granger, Frank Butler. Boston. 591 Beacon St.
 1882 Granger, Frank Clark. Randolph.
 1893 Granger, Karle Henry. South Weymouth (Weymouth).
 1910 Granstein, Charles Israel. Brockton. 31 W. Elm St.
 1895 Grant, James Henry. Lynn. 148 South Common St.
 1896 Grant, William Herbert. Boston. 293 Newbury St.
 1904 Grant, William Victor. Lawrence. 253 Essex St.
 1905 Graves, Benjamin Augustus. Dorchester (Boston). 178 Bowdoin St.
 1904 Graves, Robert John. Concord, N. H. 3 North State St.
 1901 Graves, William Phillips. Boston. 244 Marlboro' St.

- 1901 Gray, Alice Maud.....Roxbury (Boston).
2 St. James St.
- 1896 Gray, Elizabeth Taylor....Roxbury (Boston).
2 St. James St.
- 1891 Gray, George Henry.....Lynn. 11 Lynn Shore Drive.
- 1914 Greeley, Hugh Payne.....Boston. 355 Marlboro' St.
- 1877 Green, Charles Montravelle..Boston. 78 Marlboro' St.
- 1868 Green, John Orne . . . †1912 Boston. 207 Newbury St.
- 1906 Green, Robert Montravelle..Boston. 78 Marlboro' St.
- 1855 Green, Samuel Abbott . . . Boston. 1154 Boylston St.
- †1901
- 1901 Greene, Daniel Crosby, Jr..Boston. 483 Beacon St.
- 1887 Greene, Edward Miller.....Boston. 45 Chestnut St.
- 1904 Greene, Ransom Alphonso..Palmer.
Monson State Hospital.
- 1887 Greene, Ray Woodville....Worcester. 21 West St.
- 1895 Greene, Thomas Francis...Roxbury (Boston).
322 Warren St.
- 1896 Greene, William Henry....Roxbury (Boston).
322 Warren St.
- 1871 Greenleaf, John Ruggles .Gardner. 42 Chestnut St.
- †1908
- 1900 Greenough, Clara Mary....Greenfield. 17½ Federal St.
- 1898 Greenough, Robert Battey..Boston. 10 Gloucester St.
- 1888 Greenwood, Allen.....Wellesley Hills.
Office, Boston.
101 Newbury St.
- 1905 Greenwood, Arthur Moses..Marblehead. 69 Pleasant St.
- 1881 Greenwood, Sewell Elliot..Templeton.
- 1907 Gregg, Donald.....Brookline. 701 Boylston St.
- 1884 Griffin, Arthur George.....Malden. 195 Pleasant St.
- 1903 Griffin, Walter Alden.....Sharon.
- 1904 Grimes, Loring.....Swampscott. 129 Burrill St.
- 1896 Griswold, Merton Lyman...Uxbridge. South Main St.
- 1893 Gronard, John Shackford..Nantucket.
- 1904 Grover, Arthur Leon.....Iowa City, Iowa.
College of Medicine.
- 1914 Grover, Joseph Isaac.....Mattapan (Boston).
1329 Blue Hill Av.
- 1883 Gruver, Samuel James.....Brockton. 106 Main St.
- 1912 Guild, Bruno Thurber.....Shelburne Falls
(Shelburne).
1550 Blue Hill Av.
- 1887 Guild, Edgar Hunt.....Springfield. 137½ State St.
- 1910 Guild, Edward Frank.....Chelsea. 9 Crescent Av.
- 1909 Guild, Frederick Washburn..Grafton. South St.
- 1896 Guild, Thomas Ezra.....Mattapan (Boston).
1550 Blue Hill Av.
- 1914 Gunter, Fred Clarke.....Somerville. 141 Walnut St.
- 1913 Guthrie, Andrew Doherty...Roxbury (Boston).
41 Langdon St.
- 1914 Gwinnell, Alfred Weston...Brighton (Boston).
558 Washington St.
- 1914 Gwynne, Samuel Carlton...Worcester. 346 Grafton St.
- ## H
- 1905 Haché, Henry Clement.....Somerville. 464 Broadway.
- 1879 Haddock, Charles Whitney..Beverly. 156 Cabot St.
- 1904 Hagen-Bürger, Gottfried .Havana, Cuba.
Leonhard
- 1911 Hagerty, Harry John.....Worcester. 894 Millbury St.
- 1911 Hagerty, Joseph James....Norwood.
699 Washington St.
- 1911 Hagopian, Levon George...Lynn. 341 Washington St.
- 1885 Hahn, Albert Johann.....Pattensburg, N. J.
- 1911 Haigh, Gilbert William...Worcester.
189 West Boylston St.
- 1900 Haines, Ignatius.....Boston. 178 Devonshire St.
- 1911 Hall, Gardner Wells.....Boston. 475 Beacon St.
- 1877 Hall, Harry Porter.....Leominster. 70 West St.
- 1896 Hall, Herbert James.....Marblehead.
Devereux Mansion.
- 1903 Hall, John Baptiste, Jr...Roxbury (Boston).
60 Windsor St.
- 1902 Hall, Walter Davis.....Port Clyde, Me.
- 1885 Hall, William Dudley.....Boston. 416 Marlboro' St.
- 1897 Hallett, Edward Bangs....Gloucester. 63 Middle St.
- 1906 Halligan, Edward Maurice..Reading. 18 Salem St.
- 1910 Hallisey, Joseph Edward...Dorchester (Boston).
691 Columbia Road.
- 1881 Halloran, Michael Joseph...Worcester. 42 Green St.
- 1898 Halloran, Timothy Joseph..Lowell.
10 East Merrimack St.
- 1890 Halpin, Andrew James....Lowell. 22 Central St.
- 1906 Halsall, Mary Elizabeth...East Boston (Boston).
1024 Bennington St.
- 1912 Hamblen, Edward Everett..Bedford.
- 1912 Hamblen, Howard.....Maynard. Walnut St.
- 1914 Hamblet, Mary Lucia.....Waltham, R. I.
- 1908 Hamilton, Albert John . . . Boston. 69 Newbury St.
Adams
- 1899 Hamilton, Annie Lee.....Boston. 15 Blagden St.
- 1912 Hamilton, Burton Everett..West Roxbury (Boston).
152 Park St.
- 1905 Hamilton, Robert DeLancey .Newburyport.
210 High St.
- 1906 Hammond, Charles.....Hanover. Washington St.
- 1893 Hammond, Philip.....Winchester. Office, Boston.
483 Beacon St.
- 1899 Hammond, William John...Dorchester (Boston).
405 Washington St.
- 1875 Hammond, William Penn..Charlestown (Boston).
47 Monument St.
- 1906 Hancock, Albert William..Lawrence. 332 Broadway.
- 1911 Handy, Harrie Delmar....Harwich. 18 Parallel St.
- 1899 Handy, Harry Tucker.....Seaside Center.
- 1914 Hanifan, John Francis....Holyoke. 284 Maple St.
- 1895 Hanley, Francis Joseph...Whitman. 21 Whitman Av.
- 1895 } Hanley, John Joseph....Motherwell, Scotland.
1911 } 56 Brandon St.
- 1914 Hanscom, Ridgely Fernald..Boston. 1083 Boylston St.
- 1869 Hanscom, Sanford.....Somerville. 1 Webster St.
- 1901 Hanson, Justus Greeley...Northampton. 219 Elm St.
- 1905 Hanson, William Clinton...Cambridge.
Office, Boston.
144 State House
- 1907 Hanson, William Thomas..Arlington. Office, Boston.
36 State House
- 1901 Hapgood, Lyman Sawin...Cambridge. 6 Garden St.
- 1890 Harding, George Franklin..Boston. 419 Boylston St.
- 1912 Hardwick, Everett Vinton..Dorchester (Boston).
43 Algonquin St.
- 1906 Hardwick, Sydney Curtis..Quincy. 159 Elm St.
- 1888 Hare, Charles Henry.....Boston. 483 Beacon St.
- 1901 Harkins, John Francis....Worcester. 11 Salem St.
- 1890 Harlow, Corydon Webster..Melrose Highlands (Melrose). 300 Franklin St.
- 1908 Harmer, Torr Wagner....Boston. 192 Marlboro' St.
- 1901 Harriman, Charles Henry..Whitinsville (Northbridge). Church St.
- 1903 Harriman, Cora Elizabeth..Framingham. 15 High St.
- 1902 Harriman, David Eugene..Springfield. 21 Besse Pl.
- 1903 Harriman, Perley.....Lynn. 290 Summer St.
- 1907 Harrington, Clifton Ward..Everett. 545 Broadway.
- 1912 Harrington, Daniel James..Dorchester (Boston).
975 Dorchester Av.
- 1884 Harrington, Harriet Louise..Dorchester (Boston).
20 Monadnock St.
- 1903 Harrington, Michael . . . Indian Orchard
William (Springfield). Oak St.
- 1889 Harrington, Thomas . . . Boston.
Francis 310 Commonwealth St.
- 1895 Harris, Arthur Eugene....Lynn. 17 Chestnut St.
- 1898 Harris, Charles Edward...Hyannis (Barnstable).
Main
- 1900 Harris, William DeBlois...Lynn. 96 South Common
- 1908 Harrison, Columbus . . . Boston. 35 Common St.
William
- 1906 Harrison, Henry.....Boston. 153 Huntington St.
- 1884 Harrower, David.....Worcester. 9 Elm St.
- 1896 Hart, George Fred.....Webster. 17 Church St.
- 1900 Hart, Henry Brown.....East Dennis (Dennis).
- 1901 Hart, Joseph Storer.....South Lincoln (Lincoln)
- 1906 Hartman, Gustave.....Lynn.
177 North Common
- 1906 Hartnett, Edward Daniel...East Boston (Boston).
256 Bennington
- 1911 Hartnett, John Henry....Worcester. 9 Elm St.
- 1898 Hartung, Harry Hall.....Boston. 221 Huntington
- 1901 Hartwell, Arthur Spear...Norwood. 90 Winter St.
- 1902 Hartwell, Harry Fairbanks..Boston. 333 Beacon St.
- 1905 Hartwell, John Bryant....Boston. 260 Charendon

- 1901 Hartwell, William Winn...Malden. 61 Washington St.
 1898 Harvey, William Wirt.....Roxbury (Boston). 516 Warren St.
 1893 Haskell, Henry Hill.....Auburndale (Newton). Office, Boston. 29 Commonwealth Av.
 1891 Haskell, Nelson Cary.....Amherst. 50 Main St.
 1914 Haskins, Frank Eugene....Boston. 204 Huntington Av.
 1881 Haskins, Solomon Foot....Cotuit (Barnstable). Ocean View Av.
 1913 Haslam, Frank Alden.....Allston (Boston). 1379 Commonwealth Av.
 1893 Hassett, John Joseph.....Lee. Main St.
 1911 Hassett, Leonard Watson..Lynn. 586 Western Av.
 1897 Hastings, John Mason....Dorchester (Boston). 117 Stoughton St.
 1882 Hastings, Judson Feeding Hills (Agawam).
 1894 Hastings, Robert Brookline 45 Kilsyth Rd.
 1907 Hatch, Ralph Augustus...Brookline. Office, Boston. 308 Commonwealth Av.
 1906 Hatch, Royal.....Wellesley. 572 Washington St.
 1887 Hatchett, William Josephus.Somerville. 28 Arlington St.
 1899 Hathaway, John Gael.....New Bedford. 388 County St.
 1878 Haven, Henry Cecil.....Stockbridge. "Glenburnie."
 1899 Haviland, Nathaniel Clark Worcester. 656 Main St.
 1904 Haviland, Walter Childs...Worcester. 11 Elm St.
 1900 Hawes, Alfred Taylor.....Lynn. 85 North Common St.
 1887 Hawes, Edward Everett....Barnstable. Office, Hyannis. Railroad Av.
 1903 Hawes, John Bromham, 2nd.Boston. 29 Gloucester St.
 1908 Hawkins, Henry.....Boston. 397 Marlboro' St.
 1869 Hayden, David Hyslop Lynn. 40 Grosvenor Pk.
 †1914
 1898 Hayes, Albert Edwin.....Providence, R. I. 128 Broad St.
 1867 Hayes, Charles Cogswell Faribault, Minn.
 †1890 Brunswick Hotel.
 1899 Hayes, Frederick Legro....Brookline. 12 Verndale St.
 1905 Hayes, Justin Edward....Northampton. 277 Main St.
 1886 } Hayes, Justin Gideon....Williamsburg. Main St.
 1893 }
 1870 Hayes, Stephen William...New Bedford. 61 Orchard St.
 1903 Hayes, Wentworth Cambridge. 351 Harvard St.
 Larrabee
 1914 Hayes, William Francis...Beverly. 371 Cabot St.
 1901 Hayward, William Frank...East Brookfield (Brookfield).
 1869 Hazleton, Isaac Hills Wellesley Hills
 †1906 (Wellesley).
 1900 Heald, Charles Gerry.....Pepperell. Main St.
 1901 Healy, Daniel Laurence....Framingham. 54 Concord St.
 1899 Healy, Thomas Raymond...Newburyport. 12 Charter St.
 1883 Heath, Joseph Webster....Wakefield. 8 Avon St.
 1906 Heaton, Thomas Henry....Cambridge. 315 Broadway.
 874 } Hebbard, Ellery Cole....Boston. 122 Huntington Av.
 894 }
 1905 Hedin, Carl Johan.....West Pownal, Me. Maine School for Feeble-Minded.
 1906 Heffernan, David Aloysius.Boston. 69 Newbury St.
 1911 Heffernan, Dennis William.Holliston. 185 Washington St.
 1911 Hegerty, Joseph Gordon...Somerville. 339 Summer St.
 1912 Hemen, Frederick Dorchester (Boston).
 Chipman 9 Standish St.
 1907 Henderson, Charles Russell.Reading. 74 Woburn St.
 1911 Henderson, Francis Boston. 39 Newbury St.
 Freeman
 1902 Henderson, George Dallas.Holyoke. 276 Maple St.
 1912 Hendricks, Henning Vitalis..Traverse City, Mich. State Hospital.
 1910 Hennelly, Thomas Patrick..Pittsfield. 184 North St.
 1912 Hennessey, Thomas Francis.Lynn. 22 Mall St.
 1909 Hennessey, William Salem. 333 Essex St.
 Warren
 1885 Henry, John Goodrich.....Winchendon. 15 Pleasant St.
 1910 Hepburn, James Joseph....Boston. 536 Commonwealth Av.
 1911 Hermann, Otto John.....Roxbury (Boston). Office, Boston. 522 Commonwealth Av.
 1885 Herrick, Joseph Thomas...Springfield. 684 State St.
 1880 Hersey, Freeman Clarke Boston. 405 Marlboro' St.
 †1914
 1911 Hersey, Harold Waters....Winchester. Office, Boston. Mass. Gen. Hosp.
 1896 Hewes, Henry Fox.....Boston. 416 Marlboro' St.
 1882 Hewins, Parke Woodbury..Wellesley Hills. Office, Boston. 20 Beacon St.
 1897 Hewitt, Clarence Elbert...Springfield. 796 State St.
 1902 Hewitt, William Oakes....Attleborough. 34 Sanford St.
 1911 Heydemann, Martin.....Boston. 1069 Boylston St.
 1903 Hickey, John Joseph.....Peabody. 40 Main St.
 1906 Hicks, George Henry.....Fall River 1973 South Main St.
 1908 Higginbotham, Fred Watertown. 98 Mt. Auburn St.
 Augustus
 1893 Higgins, Frank Albert....Boston. 384 Commonwealth Av.
 1914 Higgins, George Vincent...Randolph, Warren St.
 1894 Higgins, James Haydyn...Union Village, Vt.
 1868 Hildreth, John Lewis †1909..Winchester. 55 Fletcher St.
 1878 Hill, Edgar Dwight.....Plymouth. 27 Court St.
 1896 Hill, George Hillard.Worcester. 15 High St.
 1904 Hill, George Jackson.....Beverly. 548 Cabot St.
 1901 Hill, George Sumner.....Boston. 295 Beacon St.
 1886 Hill, Ira Clark.....Springfield. 137½ State St.
 1913 Hill, Lawrence Richardson.Pittsfield. House of Mercy Hospital.
 1914 Hill, Lewis Webb.....Boston. 72 Pinckney St.
 1904 Hill, Thomas Chittenden...Boston. 384 Commonwealth Av.
 1903 Hillard, James Pearse....Springfield. 354 Walnut St.
 1901 Hills, Charles Everett....South Natick (Natick).
 1895 } Hills, Frederick Lyman. { Bangor, Me.
 1898 } Eastern Maine Hospital.
 1874 Hills, William Barker....Brookline. Office, Boston. 19 Pearl St.
 1914 Hilton, John Joseph Lawrence. 336 Haverhill St.
 Herron
 1905 Hinchliffe, Frederick.....Cohasset. Main St.
 1905 Hinchey, Richard.....Waltham. 17 Pine St.
 1899 Hinckley, James William..Brookline. Office, Boston. 419 Boylston St.
 1911 Hinds, Robert Watson....Address unknown.
 1913 Hinton, William Augustus.Cambridge. Office, Boston. Mass. Gen. Hospital.
 1889 Hipkiss, George.....Boston. 776 Beacon St.
 1909 Hirsch, Henry Leon.....Springfield. 172 Main St.
 1882 } Hitchcock, Edward.....Boston. 32 State House.
 1911 }
 1890 Hitchcock, Henry Russell..Plymouth. 36 Main St.
 1895 Hitchcock, John Sawyer...Northampton. 160 Main St.
 1900 Hixon, Edwin Colfax.....Brookline. Office, Boston. 419 Boylston St.
 1880 Hobbs, Ezra Allen †1911 Framingham. 40 Union Av.
 1913 Hoberman, Samuel.....Malden. 217 Bryant St.
 1907 Hoch, Theodore Augustus..Waverley (Belmont). McLean Hospital.
 1882 Hodgdon, Andrew Hall....Dedham. 110 Maple Pl.
 1903 Hodgdon, Ralph Franklin..Somerville. 107 Pearl St.
 1894 Hodges, Almon Danforth...Roxbury (Boston). 2 St. James St.
 1902 Hodskins, Morgan Brewster.Palmer. Monson State Hospital.
 1898 Hogan, Joseph Ambrose....Lawrence. 537 Essex St.
 1893 Hogner, Richard Per Boston. 365 Mass. Av.
 Gustaf
 1907 Hoit, Henry Ambrose.....Holden. Phillips Rd.
 1906 Holitt, Charles Lewis.....Lynn. 83 Franklin St.
 1883 Holitt, Eugene Gorham....Marlborough. 12 Howe St.
 1902 Holbrook, Bradbury.....Waltham. 802 Main St.

- 1910 Holbrook, Charles Albert...Haverhill. 50 Merrimack St.
 1862 Holbrook, Silas Pinckney East Douglas (Douglas). 20 Pleasant St.
 1882 Holden, Charles Sumner...Attleborough. 24 South Main St.
 1889 Holden, Eugene Martin...New York, N. Y. 1 Madison Av.
 1883 Holden, William Daniel...Haverhill. 74 Emerson St.
 1897 Holland, Hubert Thomas...Jamaica Plain (Boston). 423 Center St.
 1908 Hollings, Byam...Boston. Mass. Gen. Hosp.
 1903 Holmberg, Carl Lester...Campello (Brookton). Magnus 1106 Main St.
 1909 Holmes, Arthur Brewster...Kingston. Main St.
 1913 Holmes, Daniel Henry...Middleborough. 15 School St.
 1897 Holmes, Edgar Miller...Boston. 531 Beacon St.
 1906 Holmes, George Winslow...Brookline. Office, Boston. 205 Beacon St.
 1900 Holmes, Harry Bigelow...Adams. 37 Park St.
 1902 Holmes, Howard Fowler...Tewksbury. State Infirmary. 951 Elm St.
 1910 Holmes, John Franklin...Manchester, N. H. Isolation Hospital.
 1895 Holmes, May Salona...Worcester. 107 Mineral Spring Av.
 1907 Holt, Charles Herbert...Pawtucket, R. I. 441 High St.
 1900 Holt, Frank Hammett...Boston. Boston City Hosp.
 1883 Holyoke, Frank...Holyoke. 35 School St.
 1914 Holzer, William Francis...Winchendon. 164 Beacon St.
 1904 Homans, John...Roxbury (Boston). Office, Boston. 2 Avon St.
 1911 Honeij, James Albert...Cambridge. 9 Crescent Av.
 1897 Hood, Mary Gould...Newton Center (Newton). 69 Chestnut St.
 1879 Hooker, Charles Parker...Springfield. 385 Highland Av.
 1909 Hoole, John Edward...Somerville. Washington St.
 1900 Hopkins, Bertrand Hiram...Ayer. 25 Harrison Av.
 1895 Hopkins, Frederick Eugene...Springfield. 25 Harrison Av.
 1912 Hopkins, John Wilson...Melrose. New Eng. Sanitarium.
 1911 Hopkins, William Thorpe...Lynn. 7 Atlantic St.
 1906 Hopkinson, George...Newton. Office, Boston. 419 Boylston St.
 1906 Horne, Lester Wallace...Fairhaven. 32 Union St.
 1914 Hornor, Albert Aurelius...Roxbury (Boston). 300 Longwood Av.
 1914 Horsman, Hiram Lionel...Worcester. State Asylum.
 1906 Hosley, Walter Alexis...Springfield. 145 Clarendon St.
 1885 Hough, Garry de Nerville...New Bedford. 542 County St.
 1906 Houghton, Richard Henry...East Boston (Boston). 308 Sumner St.
 1914 Houghton, Niedhart Boston. 220 Clarendon St.
 1891 Houghton, Silas Arnold...Brookline. 14 Pleasant St.
 1882 Houston, John Alexander...Northampton. State Hospital.
 1908 Howard, Alonzo Gale...Boston. 636 Beacon St.
 1882 Howard, Amasa...Chelmsford.
 1911 Howard, Arthur Allison...Brookline. Office, Boston. 520 Commonwealth Av.
 1898 Howard, Eugene Henry...Pittsfield. 246 North St.
 1901 Howard, Frederic Hollis...Williamstown. 50 Spring St.
 1885 Howard, Herbert Burr...Roxbury (Boston). Peter Bent Brigham Hospital.
 1899 Howard, Joseph Francis...Lawrence. 6 Avon St.
 1885 Howard, Margaret Emily Roxbury (Boston). Peter Pagelsen Bent Brigham Hospital.
 1908 Howe, George Plummer...Lawrence. 155 Haverhill St.
 1904 Howe, Harry Newell...Greenfield. 4 Bank Row.
 1899 Howe, Joseph Dimock...Pittsfield. 42 North St.
 1876 Howe, Octavius Thorndike...Boston. 154 Beacon St.
 1885 Howe, Oliver Hunt...Cohasset. Main St.
 1898 Howe, Walter Clarke...Boston. 303 Beacon St.
 1906 Howell, William Wescott...West Roxbury. Office, Boston. 279 Clarendon St.
 1912 Howes, Frank Miller...Fairhaven. 84 Laurel St.
 1909 Howland, Charles Abel...Fall River. 901 Second St.
 1908 Howland, George Lewis...Jamaica Plain (Boston). 325 Center St.
 1897 Howland, Joseph Briggs...Boston. Mass. Gen. Hospital.
 1911 Hoyt, Perley Adelbert...Ludlow. North St.
 1890 Hoyt, Walter Scott...Waltham. 101 Crescent St.
 1909 Hubbard, Edward Dana...Gloucester. 96 Middle St.
 1883 Hubbard, Frank Allen...Taunton. 157 High St.
 1901 Hubbard, George William...Springfield. 327 State St.
 1896 Hubbard, Joshua Clapp...Boston. 86 Bay State Rd.
 1881 Hubbard, Josiah Clark...Holyoke. 213 Maple St.
 1894 Hubbard, Osman Huntley...Gilsum, N. H.
 1907 Hubbell, Adelbert Merton...Haverhill. 22 Merrimack St.
 1895 } Hudnut, Frank Parker... { New Bedford. 156 William St.
 1914 }
 1911 Hudnut, Paul Albert...Chesterfield.
 1896 Hughes, Laura Ann Boston. Cleophas 98 Huntington Av.
 1906 Hughes, Patrick James...Lawrence. 161 South Broadway
 1905 Hunt, Alice Elizabeth Holyoke. 364 Maple St.
 1897 Hunt, Daniel Lawrence...Boston. Palmer
 1903 Hunt, Ernest Leroi...Worcester. 771 Main St.
 1902 Hunt, George Eddy...Holyoke. 364 Maple St.
 1902 Hunt, George Pratt...Pittsfield. 34 Fenn St.
 1911 Hunt, Harold Otis...Newtonville (Newton). 424 Newtonville Av.
 1878 Hunt, William Otis...Newtonville (Newton). 424 Newtonville Av.
 1904 Hunt, Wilson Eugene...Malden. 88 Summer St.
 1905 Hunter, Norman McLeod...Hudson. 20 Lincoln St.
 1888 Hunting, Nathaniel Stevens...Quincy. 1136 Hancock St.
 1908 Huntington, James Lincoln...Boston. 8 Gloucester St.
 1876 Huntress, Leonard 1914 Lowell. 46 Fort Hill Av.
 1900 Hurd, Albert Gordon...Millbury.
 1899 Hurd, Randolph Campbell...Newburyport. 230 High St.
 1888 Hurley, Daniel Bartholo...East Boston (Boston). mew 42 Chelsea St.
 1914 Hurley, Daniel Joseph...Charlestown (Boston). 24 Monument Av.
 1906 Hurley, Edward Daniel...South Boston (Boston). Office, Boston. 419 Boylston St.
 1903 Hurley, John Joseph...Boston. 362 Commonwealth Av.
 1913 Hurley, Patrick Eugene...Holyoke. 109 Suffolk St.
 1903 Hurwitz, Abraham Joseph...Boston. 31 Chambers St.
 1905 Hussey, Edward John...Holyoke. 276 High St.
 1891 Hutchings, Joseph Henry...Woburn. 514 Main St.
 1909 Hutchins, Henry Talbot...Boston. 522 Commonwealth Av.
 1895 Hutchinson, Charles Martin...Cambridge. 5 Garden St.
 1895 Hutchinson, Cheesman Auburndale (Newton). Palmer 88 Central St.
 1901 Hutchinson, Walter Abington. Perkins
 I
 1892 Hsley, Frederick Rosecoe...Medford. 69 Washington St.
 1909 Inglis, Harry James...Brookline. Office, Boston. 483 Beacon St.
 1912 Ireson, Franklin Reynolds...Marblehead. 9 Prospect St.
 1912 Irving, Frederick Boston. 96 Bay State Rd.
 Carpenter
 1914 Irwin, Gratton George...Holyoke. 589 Dwight St.
 1897 Irwin, Vincent Joseph...Springfield. 351 Main St.
 J
 1887 Jack, Edwin Everett...Boston. 215 Beacon St.
 1886 Jack, Ernest Sanford...Melrose. 56 West Emerson St.

- SS3 Jack, Frederick Lafayette..Boston. 215 Beacon St.
 901 Jack, Lewis Harlow.....West Newton (Newton). 68 Chestnut St.
 SS9 Jackson, Alexander Worcester. 136 Austin St.
 Washington 512 Broadway.
 SS7 Jackson, Alton Atwell....Everett. 512 Broadway.
 SS2 Jackson, Charles William..Monson. Main St.
 911 Jackson, Delbert Linscott..Boston. 362 Commonwealth Av.
 SS5 Jackson, Fred William.....Jefferson, Me.
 SS4 Jackson, Henry.....Boston. 380 Marlboro' St.
 903 Jackson, Howard Bigelow..Melrose. 96 West Emerson St.
 SS1 Jackson, James Marsh.....Boston. 230 Beacon St.
 SS7 Jackson, Oliver Howard....Fall River. 34 North Main St.
 SS2 Jackson, Ralph Wentworth..Fall River. 251 Cherry St.
 SS0 Jackson, William Benjamin..Lowell. 329 High St.
 911 Jacques, Hector.....Fitchburg. 145 Water St.
 913 Jakmauh, Paul John.....South Boston (Boston). 509 East St. St.
 906 Janes, Arthur Percy.....Boston. 27 Hancock St.
 908 Janes, Benjamin Northampton. 160 Main St.
 Franklin, Jr. 5 Court St.
 98 Janes, George Herbert.....Westfield. 5 Court St.
 913 Jantzen, Francis Thomas...Boston. Relief Station.
 Haymarket Sq.
 SS0 Jaques, Henry Percy.....Lenox. "Home Farm."
 SS4 Jarvis, William Furness...Waltham. 326 Lexington St.
 SS7 Jeffries, Benjamin Joy Boston. 15 Chestnut St.
 1913
 90 Jelly, Arthur Carlton.....Boston. 10 Arlington St.
 SS3 Jenkins, Charles Edwin.....Lynn. 10 Ireson St.
 90 } Jenness, Burt Franklin... U. S. Navy.
 06 }
 05 Jennings, Curtis Herman...Fitchburg. 201 Mechanic St.
 12 Jessaman, Leon Webster... Framingham. 30 Hollis St.
 SS7 Jillson, Franklin Campbell..West Roxbury (Boston). 11 Hastings St.
 13 Johnson, Alfred Emil, Jr... New York, N. Y. 684 St. Nicholas Av.
 91 Johnson, David Joseph.....Roxbury (Boston). 1 Schuyler St.
 97 Johnson, Erik St. John... New Bedford. 271 Union St.
 94 Johnson, Francis Emerson, Erving.
 93 Johnson, Frank Mackie.... Boston. 43 Tremont St.
 90 Johnson, Frederick William..Boston. 167 Newbury St.
 13 Johnson, Harold Abbott.....Lynn. 70 Broad St.
 94 Johnson, Herbert Lewis....Hadley. Main St.
 92 } Johnson, Herbert Shattuck..Malden. 9 Myrtle St.
 98 Johnson, John Birger Lowell. 10 East Merrimack St.
 Albert 45 Wolcott Road.
 94 Johnson, Mary Williamina Brookline. 123 Winthrop St.
 Loungee 15 Washington St.
 94 Johnson, Orville Edson.... Winthrop. 303-304 W. P. Story Bldg.
 93 Johnson, Peer Prescott.....Beverly. 15 Washington St.
 91 Johnson, Walter Sydney... Los Angeles, Cal. 160 Merrimack St.
 93 Johnson, William Augustus..Lowell. 160 Merrimack St.
 98 Johnson, William Louis....Uxbridge. Main St.
 91 Johnston, Clyde Clifford...Springfield. 268 Central St.
 98 Johnston, William.....Dorchester (Boston). 206 Norfolk St.
 90 Jones, Charles David.....Malden. Office, Boston. 137 Newbury St.
 97 Jones, Daniel Fiske.....Boston. 195 Beacon St.
 91 Jones, Elgin Wilbur.....Lynn. 44 Atlantic St.
 97 Jones, Everett.....Brookline. Office, Boston. 419 Boylston St.
 97 Jones, Frederick Ellis....Quincy. 1569 Hancock St.
 95 Jones, Frederick Elmer...Brookline. Office, Roxbury. (Boston). 507 Warren St.
 97 Jones, Gilbert Norris.....Wellesley Hills (Wellesley).
 95 Jones, James Ambrose....Lynn. 173 North Common St.
 1897 Jones, John Clarke.....Brookline. 56 Hawes St.
 1892 Jones, Lombard Carter....Falmouth.
 1892 Jones, Lyman Asa.....North Adams. 141 Church St.
 1898 Jones, Mary Scott.....Boston. 82 St. Stephen St.
 1903 Jones, Raymond Child....Fitchburg. 4 Ashburnham St.
 1911 Jones, Robert Le Roy....Lowell. 219 Central St.
 1905 Jones, Wellington West...Housatonic (Great Bar- 41 Main St.
 rington). 145 Merrimack St.
 1893 Jones, William Marks....Lowell. 145 Merrimack St.
 1859 Jordan, Charles.....1895 Wakefield. 9 Jordan Av.
 1911 Jordan, Ernest Major.....Boston. 502 Beacon St.
 1873 Jordan, George Albert Worcester. 46 Myrtle St.
 1913
 1905 Jordan, John Franklin....Peabody. 77 Lynn St.
 1894 Joslin, Elliott Proctor....Boston. 81 Bay State Rd.
 1911 Joslyn, Arthur Everett....Lynn. 211 Western Av.
 1901 Jouett, Fred Robert.....Cambridge. 3 Garden St.
 1906 } Joyce, Thomas Francis...Lawrence. 296 Broadway.
 1912 }
 1914 Judd, Ernest Hart.....Springfield. 685 State St.
 1912 Judkins, Charles Louville Lynn. 7 Mason St.
 Mason
 1891 Judkins, Frank Louville...Lynn. 7 Mason St.
- ## K
- 1890 Kaan, George Warton.... Brookline. Office, Boston. 419 Boylston St.
 1914 Kaplovitch, Henry.....Haverhill. 50 Merrimack St.
 1904 Katsainos, George Michel..Boston. 106 Huntington Av.
 1907 Kazanjian, Hampar Paul..Lawrence. 283 Essex St.
 1889 Kean, Michael Edward....Manchester, N. H. 780 Elm St.
 1903 Keaney, Henry Joseph....Everett. 385 Broadway.
 1913 Keany, Francis Joseph....Boston. 73 Marlboro' St.
 1901 Kearney, John Henry.....Fitchburg. 80 Wallace St.
 1909 Kearney, Joseph Patrick...Lowell. 10 East Merrimack St.
 1886 Keefe, Daniel Edward....Springfield. 127 Main St.
 1880 } Keefe, Patrick Henry... Providence, R. I. 257 Benefit St.
 1902 }
 1889 Keegan, Charles Andrew...Arlington. 734 Mass. Av.
 1906 } Keeler, William Basil... Roxbury (Boston). 470 Warren St.
 1911 }
 1902 } Keenan, George Francis.. Boston. 520 Beacon St.
 1914 }
 1897 Keenan, Herbert John.... South Boston (Boston). 254 Broadway.
 1910 Keever, Henry Floyd.....Auburndale (Newton). 258 Melrose St.
 1904 Keith, Halbert Lynn.....Milford. 255 Main St.
 1884 Keith, Wallace Cushing...Brookton. 237 North Main St.
 1892 Keleher, William Henry...Woburn. 48 Pleasant St.
 1910 Kelleher, Jeremiah Edward..Haverhill. 170 Winter St.
 1896 Kelleher, Patrick Francis..Cambridge. 1713 Mass. Av.
 1912 Kelley, Clarence Moore....Westminster.
 1914 Kelley, Edward Joseph....Watertown. 218 Main St.
 1903 Kelley, Joseph Henry Dorchester (Boston). Hart The Peabody. Peabody Sq.
 1914 Kelley, Lawrence Kendall..Peabody. 15 Chestnut St.
 1914 Kelley, Robert Edward Mattapan (Boston). 249 River St.
 Stack
 1874 Kelley, Seth Wight 1914 Woburn. 7 Winn St.
 1883 Kellogg, Edward Brinley...Boston. 854 Beacon St.
 1912 Kellogg, Foster Standish...Boston. 96 Bay State Rd.
 1892 } Kellogg, Frederick Leroy. Boston. 366 Commonwealth Av.
 1899 }
 1908 Kelly, John Michael.....Dorchester (Boston). 182 Bowdoin St.
 1901 Kelly, Michael.....Fall River. 225 Third St.
 1893 Kelly, William P.....Pittsfield. 61 Union St.
 1913 Kemp, Howard Martin....Turner's Falls (Montague). 129 Avenue A.
 1913 Kendricken, Joseph Dorchester (Boston). Thomas 938 Dorchester Av.
 1895 } Kennard, Harry Delano...Peabody. 84 Main St.
 1902 }

- 1877 Kennealy, John Henry.... Brookline. Office, Roxbury (Boston). 1570 Tremont St.
 1898 Kennedy, Alexander Gladstone Boston. 1075 Boylston St.
 1905 Kennedy, Edward Anthony. Great Barrington. 314 Main St.
 1901 Kennelly, Julia Grice.... Cambridge. Kennedy Rd.
 1913 Kenney, Clarence Bronson. State Farm (Bridgewater).
 1884 Kenney, John Erle..... Chelsea. 119 Hawthorn St.
 1909 Kenney, Thomas Francis... Worcester. 9 High St.
 1905 Kenney, Walter Clement... Winchendon. 22 Walnut St.
 1909 Kennison, Frederick Holbrook. Marshman 93 North Franklin St.
 1907 Kent, Bradford..... Dorchester (Boston). 798 Blue Hill Av.
 1905 Kent, Ralph Porter..... Attleborough. 27 South Main St.
 1914 Kenworthy, Marion Gardner. State Colony. Edwena
 1883 Kenyon, Henry Jesse..... Worcester. 84 Pleasant St.
 1900 Kepler, Charles Ober..... Boston. 362 Commonwealth Av.
 1904 Kerr, Isabella Dickieson... Boston. 821 Beacon St.
 1911 Kerrigan, Joseph Henry... Stoneham. 66 Central St.
 1909 Kickham, Charles Joseph... Brookline. Office, Boston. 483 Beacon St.
 1908 Kilbourn, Arthur Goss..... Groton. Main St.
 1884 Kilburn, Henry Whitman... Boston. 192 Marlboro' St.
 1913 Kilburn, Ira Nelson..... Holyoke. 180 Chestnut St.
 1877 Kilby, Henry Sherman..... North Attleborough. 98 Church St.
 1914 Killam, Franklin Medford. 326 Boston Av. Harrington
 1914 Killelea, Edward Vincent... Fitchburg. 5 Day St.
 1890 Kilroy, Philip..... Springfield. 61 Chestnut St.
 1879 Kimball, William George... Huntington.
 1905 Kimpton, Arthur Ronald... Allston (Boston). Office, Boston. 86 Bay State Rd.
 1909 King, Frederick Augustine. Boston. 357 Mass. Av.
 1910 King, George Clifford..... Fall River. 57 Rock St.
 1898 King, Myron Louis..... Cambridge. 788 Mass. Ave.
 1888 King, Nathaniel Clark..... Campello (Brookton). 1147 South Main St.
 1910 King, Nicholas James Roslindale (Boston). Quan 49 Florence St.
 1881 Kingman, Rufus Anderson. Brookline Office, Boston. 366 Commonwealth Av.
 1875 Kingsbury, Albert Dexter Needham. †1913
 1906 Kingsbury, Walter Warren. Malden. 179 Ferry St.
 1905 Kingsley, Patrick Joseph... Dorchester (Boston). 5 Adams St.
 1904 Kinloch, Raymond Springfield. 83 Walnut St. Alexander
 1914 Kinne, George Lyman..... Holyoke. 285 Maple St.
 1900 Kinney, William D'Arcy... Osterville (Barnstable).
 1908 Kinnicutt, Roger..... Worcester. 72 Cedar St.
 1904 Kirby, Holder Crary..... New Bedford. 33 South Sixth St.
 1904 Kirby, James Richard..... Clinton. 181 Chestnut St. Lynn.
 1907 Kirkpatrick, George Holland 192 South Common St.
 1910 Kissock, Robert James..... Boston. 483 Beacon St.
 1898 Kite, Walter Chester..... Milton. 17 Russell St.
 1880 Kittredge, Joseph..... Brookline. 69 Cypress St.
 1874 Kittredge, Thomas..... Salem. 13 Chestnut St.
 1908 Klein, Isaac..... Boston. 1043 Washington St.
 1914 Kline, George Milton..... Hathorne (Danvers).
 1881 Knapp, Philip Coombs..... Boston. 535 Beacon St.
 1899 Knight, Charles Eugene... Rockland. 29 Church St.
 1902 Knight, Charles Lewis.... West Roxbury (Boston). Office, Boston 544 Columbus Av.
 1902 Knight, Charles Sumner... Westborough. 54 West Main St.
 1896 Knight, Marcus Whitney... Milford. S West St.
 1889 Knowles, James Harris... Gloucester. 2½ Highland St.
 1884 Knowles, William Fletcher. West Newton. Office, Boston. 220 Clarendon St.
 1892 Knowlton, Charles Davison. Roxbury (Boston). 574 Warren St.
 1910 Knowlton, Edward Allen... Holyoke. 227 Maple St.
 1892 Knowlton, Herbert Eugene. National City, Calif.
 1903 Knowlton, Wallace Miles... Boston. 462 Boylston St.
 1901 Knowlton, William Thomas. Hubbardston. Barre Rd.
 1911 Knudson, Mette Marie.... West Roxbury (Boston). 78 Park St.
 1903 Konikow-Bucholz, Malden. 103 Bryant St. Antoinette Frederica
 1894 Konikow, Moses Joseph... Roxbury (Boston). 486 Warren St.
 1901 Kurth, Gustave Emil..... Lawrence. 86 East Haverhill St.

L

 1909 Lachance, Alfred Philias... Gardner. 112 Parker St.
 1900 Ladd, Maynard..... Boston. 270 Clarendon St.
 1907 Ladd, William Edwards... Boston. 42 Gloucester St.
 1911 La Fortune, Wilfrid Teller. Fitchburg. 128 Fairmount St.
 1906 Lahey, Francis Howard... Boston. 638 Beacon St.
 1899 Laighton, Florence Marion. New York, N. Y. 33 West 96th St.
 1914 Lally, William James..... Pittsfield. 184 North St.
 1892 LaMarche, Walter Joseph... Cambridge. 1038 Mass. Av.
 1901 Lambert, Fred De Forest... Tyngsborough.
 1901 Lambert, John Henry..... Lowell. 202 Merrimack St.
 1912 LaMoure, Charles Ten Lakeville, Conn. Eyck Conn. School for Imbeciles.
 1894 Lamoureux, Joseph Elzear. Lowell. 710 Merrimack St.
 1892 Lancaster, Sherman Russell. Cambridge. 27 William St.
 1891 Lancaster, Walter Brackett. Sherborn. Office, Boston. 522 Commonwealth Av.
 1880 Lane Albert Clarence..... Woburn. 42 Pleasant St.
 1909 Lane, Clarence Guy..... Woburn. 36 Pleasant St.
 1914 Lane, Clifton Rogers..... Fitchburg. Burbank Hospital.
 1884 Lane, Edward Binney..... Jamaica Plain (Boston). Office, Boston. 419 Boylston St.
 1894 Lane, Francis Augustus... East Lynn (Lynn). 29 Lakeview Av.
 1905 Lane, John William..... Dorchester (Boston). Office, Boston. 520 Beacon St.
 1900 Lane, Walter Appleton... Milton. 173 School St.
 1904 Lang, Herbert Bowman... South Hadley.
 1896 Langlois, Joseph Augustus. Pittsfield. 54 Bradford St.
 1908 Langnecker, Harry Leslie... Cambridge. Office, Boston. 8 Marlboro' St.
 1907 Lanpher, Howard Arthur... Chester.
 1913 La Rochelle, Fred Désiré... Springfield. 508 Main St.
 1905 Larrabee, Herbert Manson. Tewksbury. Main St.
 1897 Larrabee, Ralph Clinton... Boston. 520 Commonwealth Av.
 1911 Laskey, Edward Philip... Haverhill. 94 Emerson St.
 1899 Latham, Benoni Mowry... Mansfield. 10 North Main St.
 1876 Lathrop, William Henry Lowell. 21 First St. †1905
 1910 Laton, George Peavey.... Salem, N. H. Main St.
 1898 Lavalée, George Omer... Lowell. 790 Merrimack St.
 1872 LaVigne, Alfred Willis Lowell. 173 Merrimack St. †1913
 1906 Law, Katharine Hayes... Erie, Pa. 247 West 8th St.
 1888 Lawler, William Patrick... Lowell. 53 Central St.
 1914 Lawley, Bruce Irving... Arlington. 177 Mass. Av.
 1907 Lawlor, Edward Francis... Lawrence. 94 Bennington St.
 1906 Lawlor, Richard Henry... Methuen. 251 Broadway.
 1911 Lawrence, Charles Brookline. Office, Boston Henry, Jr. 374 Marlboro' St.
 1896 Lawrence, James Wilmot... Malden. 25 Washington St.
 1897 Lawrence, Joseph Henry... Brookton. 23 Main St.
 1899 Lawrence, Nellie Louise... Boston. 425 Marlboro' St.
 1873 Lawrence, Robert Means... Boston. 177 Bay State Rd. †1912

- 1907 Laws, Sophie Goudge.....Spartanburg, S. C.
Converse College.
- 1894 Leach, Edward Mortimer..Rochdale (Leicester).
- 1893 Leach, Horace Morton†1911Rochdale (Leicester).
- 1892 Leahy, George Henry Lowell. 128 Merrimack St.
Aloysius
- 1893 Leahy, Thomas Joseph....Cambridge. 331 Broadway.
- 1895 Leard, John Samuel Hick..Jamaica Plain (Boston).
392 Arborway.
- 1887 Learned, William Turrell...Fall River. 42 Franklin St.
- 1892 Learoyd, Charles Burrey...Taunton. 2 Vine St.
- 1914 Leary, Alfred James.....Newton. 32 Channing St.
- 1905 Leary, Chrysostom John...New Bedford.
415 Pleasant St.
- 1901 Leary, Olga Cushing.....Jamaica Plain (Boston).
44 Burroughs St.
- 1913 Leary, Patrick Frank.....Turner's Falls (Montague).
20 Prospect St.
- 1906 Leary, Timothy.....Jamaica Plain (Boston).
Office, Boston.
416 Huntington Av.
- 1897 Leary, William Charles....Springfield. 630 Main St.
- 1914 Leavitt, Peirce Henry.....Boston. City Hospital.
- 1865 Leavitt, William Whipple Pittsfield. 120 South St.
†1906
- 1909 LeBeuf, Alfred Thomas...Salem. 319 Lafayette St.
- 1910 Lee, Harry Jason.....Boston. 535 Beacon St.
- 1907 Lee, Roger Irving.....Cambridge. 4 Weld Hall.
- 1914 Lee, Wesley Terence.....Somerville. 281 Broadway.
- 1901 Leen, Thomas Francis....Boston. 19 Bay State Rd.
- 1912 Leeper, Marion Eleanor....Northampton. 33 Elm St.
- 1900 Legg, Arthur Thornton....Boston. 535 Beacon St.
- 1905 LeGro, Lester Burnside....Haverhill.
50 Merrimack St.
- 1911 Leland, Forrest LeRoy....South Hadley Falls (South
Hadley). 44 Bardwell St.
- 1877 Leland, George Adams....Boston.
354 Commonwealth Av.
- 1912 Leland, George Adams, Jr..Boston.
354 Commonwealth Av.
- 1903 Lemaire, Willard Wallace.Worcester.
458 West Boylston St.
- 1908 Lemaire, William Franklin.East Lynn (Lynn).
134 Chestnut St.
- 1913 Lemay, Alfred Mederic....Lowell. Lowell Hospital.
- 1906 Lemieux, Theodule Alfred.Lawrence.
356 Haverhill St.
- 1913 Leonard, Ralph Davis....Melrose. Office, Boston.
259 Beacon St.
- 1908 Leslie, Charles Thomas...Pittsfield. 86 North St.
- 1900 Leslie, Herbert Granville..Amesbury. 273 Main St.
- 1910 L'Esperance, Oscar Raùl Boston. 100 Boylston St.
Talon
- 1908 Lesses, Max.....Salem. 62 Washington Sq.
- 1904 Levins, Nathan Noah.....Boston. 30 Chambers St.
- 1907 Levy, Felix Julius.....Brookline. 1469 Beacon St.
- 1913 Lewandowski, Julia Mary.Holyoke. 97 High St.
- 1894 Lewis, Arthur Cuthbert...Fall River.
1018 North Main St.
- 1906 Lewis, Elisha Sears.....Princeton. Wachuset St.
- 1913 Lewis, Frank Edward....Boston. City Hospital.
- 1906 Lewis, James Prince.....Waltham. Office, Boston.
543 Boylston St.
- 1914 Lewis, Seth Ames.....Springfield.
45 North Main St.
- 1897 Libby, Edward Norton....Roxbury (Boston). Office,
Boston. 638 Beacon St.
- 1893 Libby, Jesse Herbert....East Weymouth
(Weymouth).
- 1899 Libby, Mary Gordon.....Newport, N. H.
- 1903 Libby, Mildred Augusta...Baldwinsville (Templeton)
- 1912 Liebman, William.....Boston. 1069 Boylston St.
- 1912 Lincoln, George Chandler..Worcester. 2 Linden St.
- 1889 Lincoln, Jacob Read.....Millbury.
- 1903 Lincoln Merrick.....Worcester. 2 Linden St.
- 1903 Lindquist, Carl Augustus..Boston. 24 Westland Av.
- 1897 Lindsay, Joseph Ira.....Worcester. 7 Oberlin St.
- 1904 Lindsey, John Hathaway..Fall River. 151 Rock St.
- 1905 Linenthal, Harry.....Roxbury (Boston). Office,
Boston. 483 Beacon St.
- 1886 Linfield, Edward Porter...Avon.
- 1884 Litchfield, William Harvey.Brookline. 1378 Beacon St.
- 1902 Lithgow, Robert Alexander Boston. 43 Chestnut St.
Douglas †1911
- 1895 Little, Abby Noyes.....Newburyport. 22 Essex St.
- 1904 Little, John Mason, Jr....Boston. 317 Dartmouth St.
- 1884 Little, William Brimblecom.Lynn. 13 Nahant St.
- 1898 } Littlefield, George Curtis. { Webster.
1907 } 23 East Main St.
- 1909 Littlefield, Marion Curtis...Bradford (Haverhill).
Office Haverhill.
- 1893 Littlefield, Samuel Horace..Roxbury (Boston).
2 St. James St.
- 1909 Littlewood, Thomas.....Pittsfield. 779 Tyler St.
- 1909 Liverpool, Coval Henry....West Somerville (Somer-
ville). 325 Highland Av.
- 1900 Livingston, Clarence Lowell. 9 Central St.
Bertram
- 1900 Livingston, Ernest George..Lowell.
10 East Merrimack St.
- 1906 Lloyd, Henry Demarest....Boston. 657 Boylston St.
- 1898 Lockary, Joseph Logue....Roxbury (Boston).
108 Warren St.
- 1903 Locke, Edwin Allen.....Boston. 311 Beacon St.
- 1889 Lockhart, Joseph Smith....Cambridge. 837 Mass. Av.
- 1910 Loder, Halsey Beach.....Boston. 483 Beacon St.
- 1903 Loewe, Leonard Joseph....Haddam, Conn.
- 1897 Logan, Frank Barker Tays.Gloucester. 42 Middle St.
- 1902 Lord, Frederick Taylor....Boston. 305 Beacon St.
- 1896 Lord, Sidney Archer.....Cromwell, Conn.
Cromwell Hall.
- 1897 Loring, Robert Gardner...Lincoln. Office, Boston.
10 Arlington St.
- 1876 Loring, Robert Pearmain..Newton Center (Newton).
19 Crescent Av.
- 1890 Lothrop, Howard Augustus.Boston. 101 Beacon St.
- 1909 Lothrop, Oliver Ames....Boston. 101 Beacon St.
- 1895 Lougee, Frank Taylor....Lynn. 11 Atlantic St.
- 1912 Lougee, George Woodworth.Lynn. 57 Estes St.
- 1910 Lougee, John Leroy.....West Roxbury (Boston).
Office, Boston.
514 Commonwealth Av.
- 1899 Lougee, William Wheeler..Malden. 195 Main St.
- 1897 Loughran, James Francis..Lowell. 219 Central St.
- 1872 Lovejoy, Charles Averill...Lynn. 64 Broad St.
- 1914 Lovek, Joseph Arthur....Lawrence. 147 Oak St.
- 1894 Lovell, Charles Dixon Lynn.
Smith 128 South Common St.
- 1885 Lovell, Charles Edward....Whitman. South Av.
- 1894 Lovell, David Bigelow....Worcester. 340 Main St.
- 1900 Lovell, Martha Eleanor....Allston (Boston).
52 Ashford St.
- 1884 Lovett, Robert Williamson.Boston. 234 Marlboro' St.
- 1903 Lowd, Harry Mosher.....Swampscott.
- 1886 Lowe, Fred Messenger....West Newton (Newton).
1354 Washington St.
- 1901 Lowell, Albert Fay.....Gardner. 20 Vernon St.
- 1898 Lowell, Alverne Percy....Fitchburg. 52 Hartwell St.
- 1901 Lowell, Freeman Boston. 2A Milford St.
Lamprey
- 1905 Lowell, William Holbrook.Winchester. Office, Boston
101 Newbury St.
- 1906 Lowney, Dennis Joseph. New Bedford.
1325 Acushnet Av.
- 1902 Lowney, John Francis....Fall River.
755 Plymouth Av.
- 1910 Lucas, William Palmer....San Francisco, Calif.
University Hospital.
- 1908 Luce, Dean Sherwood.....Canton.
- 1913 Luce, LeRoy Alson.....Boston. 394 Marlboro' St.
- 1898 Luchsinger, Harry Warner.Housatonic (Great Bar-
rington). Main St.
- 1913 Luftig, Jacob.....Boston. 282 Columbus Av.
- 1891 Lund, Fred Bates.....Boston. 527 Beacon St.
- 1908 Lundwall, Laurence Gardn r. 316 Central St.
Svante Bernhard
- 1908 Lupien, Henry John.....Brockton. 63 Main St.
- 1890 Lussier, Charles Arthur...Worcester. 154 Grand St.
- 1913 Lyle, Eveline Burton.....Brookline. 5 Winchester St.

- 1914 Lyman, Henry..... Boston.
36 Commonwealth Av.
1907 Lyman, William Robinson. Worthington.
1899 Lynch, Charles Francis... Springfield. 317 Main St.
1903 Lynch, Cornelius Joseph... Quincy. 1620 Hancock St.
1908 Lynch, Daniel Lawrence... Roslindale (Boston).
100 Belgrade Av.
1913 Lynch, Henry Edmund.... Holyoke. 240 Maple St.
1902 Lynch, Patrick Michael... Springfield. 39 Main St.
1911 Lynch, William Francis... Worcester. 20 Portland St.
1914 Lyons, George Aloysius... Lynn.
120 South Common St.
1896 Lyons, Joseph Benedict... Charlestown (Boston).
1 Dexter Row.

M

- 1889 MacArthur, George Elden... Ipswich. 45 Central St.
1913 MacAusland, Andrew Roy. Boston. 240 Newbury St.
1905 MacAusland, William Boston. 240 Newbury St.
Russell
1913 Macauley, Joseph Arthur... Dorchester (Boston).
612 Dudley St.
1907 MacCallum, Wallace Peter. Dorchester (Boston).
Office, Boston.
214 Huntington Av.
1905 MacCormick, John Allan... Brookline. Office, Boston.
419 Boylston St.
1912 MacCorison, Carl Copeland. North Reading. State
Sanatorium,
P. O. North Wilmington.
1896 Macdonald, Alexander Dorchester (Boston).
Ambrose 119 Washington St.
1865 MacDonald, Archibald Ontario, Calif.
Elexis
1887 Macdonald, Colin William... Roxbury (Boston).
1 New Heath St.
1909 MacDonald, Donald Taunton. 10 White St.
Francis
1906 Macdonald, Frederick Roxbury (Boston).
Cornelius 544 Warren St.
1914 MacDonald, Frederick Waltham. 333 Moody St.
Livingstone
1913 Macdonald, John Bernard. Hathorne (Danvers).
State Hospital.
1908 MacDonald, William Malden. 538 Main St.
Campbell
1865 Macdonald, William Lewis. Wellesley Hills
†1903 (Wellesley).
1908 Mace, Charles Herbert... Huntington.
1913 MacFadyen, John Worcester. 118 Belmont St.
Alexander
1901 MacKay, Edward Hart... Clinton. 92 Walnut St.
1898 MacKay, George Finlay... Dalton. 71 Main St.
1879 MacKeen, Alfred Atwater... Whitman. 29 Park Av.
1906 MacKerrow, Horace Gilford Worcester. 96 Eastern Av.
1885 Mackie, Laura Viola Attleborough.
Gustin 157 Pleasant St.
1899 Mackie, William Charles... Brookline. 54 Coolidge St.
1905 MacKillop, Daniel... Cambridge. 307 Broadway.
1907 MacKinnon, Donald Medford. Office, Boston.
Lauchlin S Columbus Sq.
1914 MacKay, William Henry... Poughkeepsie, N. Y.
Vassar Brothers Hospital.
Fall River.
1898 MacKnight, Adam Stephenson 355 North Main St.
1914 MacKnight, William Frank. Boston. 198 St. Botolph St.
1901 MacLennon, Angus Daniel. Boston. 654 Tremont St.
1908 MacLeod, Norman Murray. Newport, R. I.
Newport Hospital.
1911 MacMichael, Earle Haggett. Malden. 56 Summer St.
1890 MacMillan, Andrew Louis. Hanover. Washington St.
1910 MacMillan, Andrew Concord. N. H.
Louis, Jr. 28 South Main St.
1910 MacNeil, Charles Seward Malden. 143 Main St.
Jadis
1912 Macomber, Donald... West Newton (Newton).
Office, Boston.
355 Marlboro' St.
1892 } MacPherson, William }
1903 } Ellsworth } St. Marc, Haiti.

- 1904 Macrae, Annie Campbell... Fall River. 130 Rock St.
1904 Madden, William Daniel... Boston. 669 Mass. Av.
1905 Magrath, George Burgess... Boston. 274 Boylston St.
1898 Maguire, Charles Francis... Somerville. 432 Bedford St.
1906 Maguire, Eugene Leo... Somerville. 390 Medford St.
1908 Maguire, Frank Leroy... Worcester. 765 Main St.
1903 Magurn, Francis Thomas Charlestown (Boston).
Louis 112 Main St.
1913 Mahar, Harold Robert Orange. 1 High St.
Collins
1904 Mahoney, Daniel Francis... Boston. 24 Marlboro' St.
1898 Mahoney, Edward Joseph... Springfield. 4 Mattoon St.
1896 Mahoney, George Clifton... West Somerville (Somerville). 97 College Av.
1911 Mahoney, Matthew Patrick. Lowell. 169 Merrimack St.
1888 Mahoney, Stephen Andrew. Holyoke. 630 Dwight St.
1913 Mahoney, Walter Francis... Westborough. 39 South St.
1902 Mahony, Francis Ronan... Lowell. 8 Merrimack St.
1899 Mains, Charles Frederick... Dorchester (Boston).
145 Dorchester Av.
1905 Makechnie, Arthur North... Cambridge. 14 Upland Rd.
1879 Makechnie, Horace West Somerville (Somerville). 238 Elm St.
Perkins †1907
1891 Mallory, Frank Burr... Brookline
Office, Roxbury (Boston)
240 Longwood Av.
1903 Malone, Charles... Jamaica Plain (Boston).
3 Glen Rd.
1908 Maloney, John Martin... Springfield. 559 Liberty St.
1905 Maloney, Thomas Aloysius. Springfield. 315 Walnut St.
1893 Manahan, Herbert Lawrence.
Wellington 104 South Broadway
1901 Mandell, Augustus Hamlin. New Bedford.
25 Sycamore St.
1893 Mangan, John Joseph... Lynn.
171 South Common St.
1902 Manix, Edward Tuck... Lynn. 59 Lewis St.
1908 Mann, William Orris... Brookline. 24 Warwick Rd.
1908 Mannix, Louis Edward... Chicopee Falls (Chicopee). 112 Main St.
1869 Mansfield, Henry Tucker Needham. 897 Highland Av.
†1911
1897 Mansfield, James Albert... Roxbury (Boston).
342 Dudley St.
1899 Mansur, Leon Wallace... Los Angeles, Calif.
1109 Brockman Bldg.
1911 Mara, Joseph Lawrence... Brockton. 616 Main St.
1912 Marble, Henry Chase... Boston.
28 Commonwealth Av.
1870 Marble, John Oliver †1908 Worcester. 16 Murray Av.
1903 Mareley, Walter John... Minneapolis, Minn.
9th St. and Nicolet Av.
1863 Marcy, Henry Orlando... Boston. Office, Cambridge
860 Mass. Av.
1901 Marey, Henry Orlando, Jr. Newton. 140 Sargent St.
1903 Markham, Erwin Walter... Lee. Main St.
1913 Maroney, Patrick Joseph... Westfield. 16 Chapel St.
1913 Marr, Edward Loring... Melrose. 36 Whittier St.
1898 Marr, Myron Lawrence... Dorchester (Boston).
11 Hopestill St.
1907 Marr, Myron Whitmore... Dorchester (Boston).
206 Minot St.
1912 Marr, Robert McClellan... Springfield. Mercy Hosp.
1912 Marsden, George... New Bedford.
1579 Acushnet Av.
1910 Marsh, Anna Peabody... Danvers. 155 Center St.
1895 Marsh, Arthur White... Worcester. 690 Main St.
1903 Marshall, Augustus Chelsea, Vt.
Thompson
1909 Marshall, Herman Weston. Boston. 8 Marlboro' St.
1908 Marshall, William Lynn. 26 Broad St.
Reginald
1911 Marston, Warren Winfield. Newton.
337 Washington St.
1897 Martel, Stanislaus... Lynn. Office, Boston.
362 Commonwealth Av.
1897 Martin, Archibald Herbert. Lynn. 29 Broad St.
1913 Martin, Edward... Roxbury (Boston).
217 Warren St.
1913 Martin, Harold Winthrop... Dorchester (Boston).
26 Glenarm St.

1898 Martin, Harry Charles....	Springfield. 374 Main St.	1906 McCurdy, Theodore	Roxbury (Boston).
1904 Martin, John Brayton....	Lynn. 25 Newhall St.	Edward Alexis	798 Tremont St.
1913 Martin, John Foley.....	Boston. 1 Mountfort St.	1900 McDermott, Joseph	Charlestown (Boston).
1897 Martin, John Macleod....	Roxbury (Boston). 238 Warren St.	Edward	296 Bunker Hill St.
1891 Martin, Miles.....	Boston. Hotel Westminster, Copley Sq.	1988 McDermott, William	Salem. 6 Brown St.
1902 Marvell, Mary Wilbur....	Fall River. 243 Highland Av.	Vincent	
1884 Mason, Atherton Perry....	Fitchburg. 355½ Main St.	1903 McDonald, James William	Worcester. 33 Trumbull St.
1914 Mason, Broadstreet Henry..	Worcester. State Hospital.	1902 McDonald, Samuel James..	Boston. 657 Boylston St.
1913 Mason, Gilbert McClellan..	Dorchester (Boston). Office, Boston.	1899 McDonald, William Joseph.	Charlestown (Boston). 41 High St.
1902 Mason, Nathaniel Robert...	Boston. 483 Beacon St.	1900 McEvoy, George Albert....	Dorchester (Boston). Office, Boston. 520 Beacon St.
1907 Masse, John Baptiste.....	Lawrence. 260 Broadway.	1894 McEvoy, Thomas Edward..	Worcester. 37 Portland St.
1900 Masten, Charles Howard....	Worcester. 919 Main St.	1898 McFee, William David....	Haverhill. 103 Merrimack St.
1876 Mather, Edward Elias	1910 Williamstown.	1914 McGann, Pierce Powers....	Boston. City Hospital.
1906 Mather, John Adams.....	Colrain. Box 49.	1886 McGannon, Thomas Gerald..	Lowell. 226 Merrimack St.
1907 Mathes, Roy Wentworth...	Lynn. 65 Broad St.	1891 McGauran, Michael	Lawrence. 258 Broadway.
1910 Mathews, Robert Francis..	Worcester. 18½ Portland St.	Sheridan	
1879 Matte, Joseph Hubert	North Adams. Ambrose 1914	1900 McGee, Fanny Maria.....	Waban (Newton). 765 Chestnut St.
1909 May, George Elisha.....	Newton Center (Newton). 661 Commonwealth Av.	1893 McGillicuddy, John	Worcester. 390 Main St.
1899 May, John Shepard.....	Roxbury (Boston). 495 Warren St.	Timothy	
1889 Mayberry, Edwin Nelson...	South Weymouth. (Weymouth).	1904 McGillicuddy, Richard	Turner's Falls (Montague). Avenue A.
1905 Mayberry, Frank Eugene...	Pittsfield. 100 North St.	Aloysius	
1902 Mayhew, Orland Smith....	Vineyard Haven (Tisbury).	1914 McGinity, Joseph Taney...	Springfield. 236 Dickinson St.
1896 McAdams, James Philip...	Lowell. 295 Central St.	1909 McGinley, Michael Charles.	Ipswich. Central St.
1910 McAdams, Peter Stephens..	Cambridge. Office, Boston. 1075 Boylston St.	1900 McGirr, Felix Francis....	Cambridge. 1436 Cambridge St.
1906 McAllester, John Joseph	New Bedford. Hector	1898 McGrath, Bernard Francis.	Rochester, Minn. St. Mary's Hospital.
1905 McAllester, Ralph William.	Everett. 693 Broadway.	1912 McGraw, Andrew James...	Taunton. 61 Broadway.
1899 McAllister, Frederick	Lawrence. 31 Jackson St. Danforth	1907 McGurn, William J.....	Roxbury (Boston). 1165 Tremont St.
1906 McArdle, John Joseph....	Lawrence. 477 Essex St.	1886 McIntire, David.....	Dorchester (Boston). 246 Boston St.
1902 McBain, William Hearst...	Malden. 456 Pleasant St.	1914 McIntire, Frederic Joseph.	Lynn. 63 North Common St.
1910 McCabe, Francis Joseph...	North Easton (Easton). 59 Main St.	1908 McIntire, George Francis..	Cambridge. 5 Dana St.
1897 McCabe, John Joseph.....	Holyoke. 290 Maple St.	1882 McIntire, Herbert Bruce...	Cambridge. 4 Garden St.
1905 McCaffrey, Charles Francis.	Somerville. 44 Summer St.	1896 McIntosh, Herbert.....	Sharon. Office, Boston. 419 Boylston St.
1913 McCann, Charles Daniel...	Brockton. 28 Main St.	1914 McIver, George Albert....	Worcester. State Hospital.
1886 McCarthy, Charles Daniel..	Malden. 164 Pleasant St.	1909 McKallagat, Peter Leo....	Lawrence. 301 Essex St.
1897 McCarthy, Charles Florence	Winchester. 452 Main St.	1897 McKeen, Sylvester Forshay	Allston (Boston). 556 Cambridge St.
1892 McCarthy, Eugene Allan...	Cambridge. 5 Bigelow St.	1912 McKelvey, Alexander	Address unknown. Dunbar
1908 McCarthy, Eugene Ambrose	Fall River. 901 Second St.	1892 McKenna, Francis Patrick.	Jamaica Plain (Boston). 382 Center St.
1906 McCarthy, Francis Patrick.	Mattapan (Boston). 1420 Blue Hill Av.	1893 } McKenzie, John Robert...	Cambridge. 897 Mass. Av.
1907 McCarthy, Louis Flurence.	Malden. 332 Pleasant St.	1912 }	
1897 McCarthy, Thomas Francis	Marlborough. Cotting Av.	1901 McKibben, William Watson.	Worcester. 390 Main St.
1890 McCarthy, Thomas	Brockton. 183 Main St.	1893 } McKoan, John William...	Worcester. 26 Lincoln St.
1906 McCarthy, Timothy	Jamaica, N. Y.	1913 }	
1878 McCarty, James Joseph...	Lowell. 574 Central St.	1914 McLaughlin, Allen Joseph..	Boston. 145 State House.
1904 McCausland, William	Quincy. 123 Franklin St.	1914 McLaughlin, Arthur Otis...	Haverhill. 120 Emerson St.
1875 McClean, George Chesley...	Springfield. 337 State St.	1895 McLaughlin, Henry	Brookline. Office, Boston. 394 Marlboro' St.
1912 McClintock, Francis Blake.	Chelsea. 27 Crescent Av.	Valentine	
1911 McCluskey, Richard John...	Lowell. 40 Middlesex St.	1885 McLaughlin, Joseph	Roxbury (Boston). 92 Walnut Av.
1908 McClusky, Henry Lincoln..	Worcester. 7 Hawthorne St.	Ignatius	
1889 McCollom, John Hildreth..	Boston. 29 Ivy St.	1910 McLean, John Allan.....	West Somerville (Somer- ville). 16 Curtis St.
1912 McConnell, David James...	Greenfield. 2 Chapman St.	1901 McLeod, John Scott.....	Roxbury (Boston). 151 Warren St.
1900 McCormick, Alfred Hugh..	Northampton. 78 Main St.	1913 McMahan, Francis Joseph.	Brookline. 370 Washington St.
1875 McCormick, Cornelius	Waltham. 825 Main St.	1904 McMann, William Henry...	Jamaica Plain (Boston). 328 Center St.
1906 McCormick, John Joseph...	Woburn. 60 Montvale Av.	1900 McMurray, Francis Michael	Fitchburg. 267 Main St.
1904 McCormick, Thomas	Roxbury (Boston). Joseph Henry	1888 McNally, William Joseph..	Charlestown (Boston). 31 Monument Sq.
1907 McCready, Leo Thomas....	Jamaica Plain (Boston). 2 Peter Parley Rd.	1903 McNamara, John James...	Brockton. 231 Main St.
1911 McCreery, Clarence	Fall River. Charles	1898 McNeish, Alexander.....	Leicester. Pleasant St.
	900 Plymouth Av.	1882 McOwen, William Henry...	Newton Upper Falls (New- ton). 280 Elliot St.
		1905 McPherson, George Edwin.	Foxborough. Baker St.
		1903 McPherson, Ross.....	New York, N. Y. 20 West 50th St.

- 1909 McQuade, Lewis Steele...Dorchester (Boston).
1081 Blue Hill Av.
- 1898 McQuaid, Thomas Bernard...Everett. 487 Broadway.
- 1910 McRae, Alexander John...Wilkes-Barre, Pa.
City Hospital.
- 1914 McRobbie, Alexander...Lynn. 48 So. Common St.
- 1905 McSheehy, Theobald...Worcester. 86 Vernon St.
Coleman
- 1914 McWeeny, Bernadette...Boston. 15 Blagdon St.
Marie
- 1897 Mead, Frederick Ammi...Willimansett (Chicopee).
984 Chicopee St.
- 1892 Mead, George Nathaniel...Winchester. 27 Church St.
Plummer
- 1903 Mead, Louis Guy...Boston. 259 Beacon St.
- 1912 Means, James Howard...Boston. 156 Chestnut St.
- 1906 Means, Philip Corydon...Apponaug, R. I.
- 1905 Medalia, Leon Samuel...Boston. 483 Beacon St.
- 1905 Meehan, Patrick Joseph...Lowell. 228 Worthen St.
- 1906 Mehan, Joseph Aloysius...Lowell. 4 Park St.
- 1895 Mehegan, Daniel Joseph...Taunton. 26 Pleasant St.
- 1890 Meigs, Joe Vincent...Lowell. 160 Merrimack St.
- 1894 Meigs, Return Jonathan...Lowell. 226 Merrimack St.
- 1906 Mellen, Eleanor Way Allen...Newton Highlands (New-
ton). 291 Lake Av.
- 1911 Mellen, Harry George...Pittsfield. 150 North St.
- 1905 Mellus, Edward...Newton. 419 Waverley Av.
- 1905 Mendelsohn, Louis...Dorchester (Boston).
477 Washington St.
- 1894 Mercer, William James...Pittsfield. 142 First St.
- 1899 Merriam, Franklin Henry...South Braintree (Brain-
tree). 37 Holbrook Av.
- 1893 Merrick, Robert Michael...Dorchester (Boston).
18 Mt. Ida Road.
- 1914 Merrill, Adelbert Samuel...Boston. 660 Tremont St.
- 1896 Merrill, Arthur Ellsworth...Somerville. 367 Medford St.
- 1905 Merrill, Ayres Philip...Pittsfield. 519 North St.
- 1896 Merrill, William Howe...Lawrence. 301 Essex St.
- 1901 Merritt, Louis Arthur...Wollaston (Quincy).
357 Newport Av.
- 1897 Merritt, Silas Virgil...Fall River. 297 Osborn St.
- 1900 Merritt, Victor Sulviro...Springfield.
141 Willbraham Road.
- 1883 Messer, Charles Carson...Turners' Falls (Montague).
Avenue A.
- 1910 Messer, Edward Raymond...Pittsfield. 344 North St.
- 1905 Messinger, Harry Carleton...Providence, R. I.
260 Broad St.
- 1896 Metcalf, Ben Hicks...Winthrop.
174 Winthrop St.
- 1913 Metcalf, Julia Tracy...Brookline. 16 Browne St.
- 1914 Metcalf, Richard...Boston. 24 McLean St.
- 1912 Metzger, Butler...Lynn. 153 Lewis St.
- 1914 Meyer, Edward James...Somerville. 18 Bow St.
- 1901 Middleton, Willis Johnson...Quincy. 446 Washington St.
- 1885 Mignault, Rodrigue...Lowell. 534 Merrimack St.
- 1909 Miles, Charles Gardner...Brockton. 23 Main St.
- 1893 Miles, George Albert...West Somerville (Somer-
ville). 56 Chester St.
- 1867 Millard, Henry James...North Adams.
1908 81 Church St.
- 1892 Miller, Charles Herman...Dorchester (Boston).
The Peabody, Ashmont St.
- 1877 Miller, Ernest Parker...Fitchburg. 408 Main St.
- 1910 Miller, George Fremont...Boston. 660 Tremont St.
- 1895 Miller, Lester Colwell...Worcester. 14 Oxford St.
- 1909 Miller, Percy Farrington...Harwich. Main St.
- 1912 Miller, Richard Henry...Boston. 279 Clarendon St.
- 1900 Miller, Samuel Osgood...Three Rivers (Palmer).
- 1880 Millet, Charles Sumner...Brockton. 23 Main St.
- 1913 Millett, Frank Albertus...Greenfield. 17½ Federal St.
- 1898 Milliken, Charles Warren...Barnstable
- 1893 Milot, Alphonse Francois...Taunton. 160 Bay St.
- 1900 Milot, Wilfrid Francois...Attleborough. 27 Bank St.
- 1912 Mindlin, Carl...Haverhill.
343 Washington St.
- 1891 Miner, Worthington...Ware. 37 Main St.
Warner
- 1912 Minot, George Richards...Boston. 188 Marlboro' St.
- 1877 Minot, James Jackson...Boston. 188 Marlboro' St.
- 1896 Minshall, Arthur Gladstone...Northampton. 16 Center St.
- 1893 Mitchell, Arthur...Medfield.
- 1897 Mitchell, Harry Walter...Warren, Pa. State Hosp.
- 1895 Mitchell, Mary Paulsell...Warren, Pa. State Hosp.
- 1901 Mitchell, William...Needham Highlands
(Needham)
- 1908 Mixter, Charles Galloupe...Boston. 180 Marlboro' St.
- 1881 Mixter, Samuel Jason...Boston. 180 Marlboro' St.
- 1907 Mixter, William Jason...Boston. 180 Marlboro' St.
- 1909 Moeckel, Carl Richard...Lawrence. 443 Broadway
- 1904 Moline, Charles...Sunderland.
- 1911 Monahan, Edward James...Revere. 665 Beach St.
- 1914 Monahan, John Ambrose...Clinton. 181 Chestnut St.
- 1913 Moncrieff, William...New Bedford.
Armitage 142 Merrimack St.
- 1894 Mongan, Charles Edward...Somerville. 21 Central St.
- 1880 Monks, George Howard...Boston. 67 Marlboro' St.
- 1907 Monty, Adelbert Howard...Brooklyn, N. Y.
Norwegian Hospital
- 1898 } Moody, Flora Frost... { Springfield.
1911 } 77 Dartmouth St.
- 1911 Moore, Frederick Porter...Foxborough. State Hosp.
- 1911 Moore, George Albert...Brockton. 47 Green St.
- 1904 } Moore, George Colton...Boston. 16 Union Park.
1914 }
- 1913 Moore, Howard...Newton. Office, Boston.
272 Newbury St.
- 1908 } Moore, John Francis...Worcester. 11 Elm St.
1915 }
- 1898 Moore, John Henry...Boston. 419 Boylston St.
- 1914 Moore, Mary Teresa...Roxbury (Boston).
Veronica Office, Boston.
- 1901 Moore, Philip Patrick...Gloucester. 58 Middle St.
- 1903 Mooring, Scott Webber...Gloucester.
738 Washington St.
- 1907 Moran, Charles Leo...U. S. Navy.
- 1872 Moran, John Brennan...Roxbury (Boston).
1908 35 Mt. Pleasant Av.
- 1911 Morgan, Charles Russell...Boston. 335A Columbus Av.
- 1885 Morgan, John...Boston. 39 Huntington Av.
- 1903 Morgner, Richard August...Fitchburg. 429 Main St.
- 1914 Moriarty, Patrick Maurice...Springfield. 820 State St.
- 1878 Morong, Arthur Bennett...Boston. 12 Blackwood St.
- 1891 Morris, George Patrick...South Boston (Boston).
811 Broadway
- 1891 Morris, James Stewart...Revere. 648 Beach St.
- 1889 Morris, John Gavin...South Boston (Boston).
97 Broadway
- 1873 Morris, Michael Augustine...Charlestown (Boston).
Office, Boston.
390 Commonwealth Av.
- 1897 Morris, Richard Hoit...Everett. 39 Corey St.
- 1907 Morrison, Archibald...Boston. 353 Mass. Av.
Benjamin
- 1910 Morrison, Hyman...Dorchester (Boston).
103 Glenway St.
- 1908 Morrison, Robert Francis...Holyoke. 32 Main St.
- 1887 Morrison, William...East Boston (Boston).
Alexander 80 Princeton St.
- 1913 Morrison, William Reid...East Boston (Boston).
80 Princeton St.
- 1892 Morrow, Charles Harvey...Gloucester. 46 Pleasant St.
- 1906 Morrow, William Robert...Frammingham. 21 Irving St.
- 1898 Morse, Almon Gardner...Hingham. Office, Boston
121 Marlboro' St.
- 1892 Morse, Charles Ellsworth...Wareham. Main St.
- 1896 } Morse, Charles Frederick Boston. 263 Summer St.
1914 }
- 1887 Morse, Frank Adelbert...Lynn. 11 Lincoln St.
- 1896 Morse, Frank Leander...Somerville.
78 Highland Av.
- 1885 Morse, Fred Harris...Winthrop. Office, Boston
162 Boylston St.
- 1910 Morse, George W...Boston. 30 Pinckney St.
- 1878 Morse, Henry Lee...Boston. 112 Marlboro' St.
- 1910 Morse, Irene May...Clinton. 124 Water St.
- 1890 Morse, John Lovett...Boston. 70 Bay State St.
- 1905 } Morse, Nathaniel Niles...Mattapan (Boston).
1914 } 120 Wellington Hill
- 1909 Morse, Roy Sydney...Ashland.
- 1898 Mosher, Harris Peyton...Boston. 828 Beacon St.

014 Mosher, Marshall James...Waltham. 925 Main St.
 014 Mossman, George.....Fitchburg. Burbank Hosp.
 009 Mudge, Otis Pope.....Amesbury. 16 Market St.
 013 Mulcahy, William Edward..Springfield. 247 Eastern Av.
 008 Mullen, Peter James.....Amesbury. 12 Sparhawk St.
 084 Munro, Walter Lee.....Providence, R. I. 62 North Main St.
 006 Munroe, Harrington Lynn. 875 Western Av.
 001 Murdock, Frederick Bennett Brockton. 37 West Elm St.
 008 Murphy, Anna Frances....Worcester. 831 Main St.
 003 Murphy, Daniel David....Amesbury. 164 Main St.
 014 Murphy, Edward Frederick..Roxbury (Boston). 1451 Tremont St.
 004 Murphy, Edward Martin...Lowell. 175 Central St.
 000 Murphy, Edward Vincent...Newport. R. I. 118 Mill St.
 085 Murphy, Emily Frances....Taunton. 23 Summer St.
 084 Murphy, Francis Charles...Boston. 315 Marlboro' St.
 004 Murphy, Frank Augustine..Taunton. 4 Fruit St.
 002 Murphy, Fred Towsley....St. Louis, Mo. 1806 Locust St.
 005 Murphy, Frederick Paul...Lowell. 219 Central St.
 005 Murphy, Frederick Vincent..Attleborough. 51 Bank St.
 013 Murphy, John Joseph.....Cambridge. 3 Norris St.
 010 Murphy, John Patrick Washington, D. C. Henry Govt. Hosp. for Insane.
 082 Murphy, Joseph Briggs....Taunton. 23 Summer St.
 013 Murphy, Joseph Leroy....Taunton. 23 Summer St.
 005 Murphy, Thomas William..Lawrence. 248 Broadway.
 088 Murphy, Timothy Joseph..Roxbury (Boston). Office, Boston. 520 Beacon St.
 010 Murray, Benjamin Frank..Boston. 6 Beacon St.
 010 Murray, Patrick Joseph....Dorchester (Boston). 162 Harvard St.
 007 Myers, Elizabeth Young...Springfield. 11 St. James Av.
 003 Myers, Samuel William....Boston. 47 Chambers St.
 003 Myers, Solomon.....East Boston (Boston). 93 Lexington St.
 004 Myles, Leo Thomas.....Cambridge. 146 Oxford St.
 010 Myrick, Alfred Winthrop..Randolph.
 001 Myrick, Hannah Glidden...Roxbury (Boston). Office, Boston. 502 Beacon St.
 009 Mysel, Hymen Abraham...Haverhill. 310 Washington St.
 013 Mysel, Philip.....Dorchester (Boston). 1095 Blue Hill Av.

N

05 Nagle, Evelyn Wyman....Boston. 550 Newbury St.
 99 Nason, Arthur Clark.....Newburyport. 178 High St.
 95 Nason, Osman Cleander Baker Cambridge. 5 Chester St.
 014 Nathanson, Elias Saul....Lynn. 242 Summer St.
 010 Naurison, James Zuslofsky..Springfield. 25 North Main St.
 08 Neff, Irwin Hoffman.....Foxborough. State Hosp.
 072 Neilson, William.....North Leominster (Leominster). 34 Moorland Av.
 03 Nelligan, John Patrick...Cambridge. 2280 Mass. Av.
 012 Nelson, Christian Augustus..Cambridge. 1010 Mass. Av.
 08 Nettle, Paul.....Haverhill. 207 Groveland St.
 07 Nevers, Harry Hill.....Lawrence. 204 South Union St.
 2 Newburgh, Louis Harry...Roxbury (Boston). Office, Boston. 419 Beacon St.
 07 Newell, Franklin Spilman..Boston. 443 Beacon St.
 01 Newhall, Avery Lester....Lynn. 7 Vine St.
 9 Newhall, Harvey Field....Lynn. 51 Nahant St.
 06 Newhall, Herbert William..Lynn. 82 Broad St.
 6 Newhall, Lawrence Thompson Brookfield.
 9 Newton, Aaron Lewis.....Northfield.
 4 Newton, Edward Roswell...Somerville. 50 Benton Rd.
 8 Newton, Ralph Waldo....U. S. Army.

1909 Newton, Roland Stephen...Westborough. 50 West Main St.
 1898 Newton, William Curtis...Revere. 596 Beach St.
 1870 Nichols, Arthur Howard Boston. 55 Mt. Vernon St.
 1911
 1890 Nichols, Edward Hall....Boston. 294 Marlboro' St.
 1892 Nichols, John Holyoke....Tewksbury. State Infirmary.
 1884 Nickerson, George Stoneham. 55 Central St.
 Wheaton
 1902 Nickerson, John Peter....West Harwich (Harwich).
 1871 Nickerson, William Jabez New Bedford. 164 Middle St.
 1910
 1911 Nield, William Andrew....New Bedford. 62 Fifth St.
 1899 Nielsen, Edwin Björne....West Newton (Newton). Office, Boston. 543 Boylston St.
 1912 Nietsch, Walter Eric New Bedford. Lothar St. Luke's Hospital.
 1900 Nightingale, James.....Worcester. 138 Franklin St.
 1874 Nims, Edward Beecher Springfield. 40 Harvard St.
 1903
 1914 Nishan, Hampersumian Boston. Migneriditch 1747 Washington St.
 1887 Noble, Alfred Ira.....Kalamazoo, Mich. Box A.
 1895 Noble, Angenette Fowler Westfield. 21 Noble St.
 1906 Noble, Mary Gill.....Dorchester (Boston). State Hospital.
 1902 Nolen, Walter Freeman....Boston. 535 Beacon St.
 1911 Noonan, William Andrew..Cambridge. 472 Cambridge St.
 1914 Normand, Jean Napoleon...Fall River. 183 Hunter St.
 1865 Norris, Albert Lane Malden. 283 Clifton St.
 1907
 1903 Norris, Albert Perley....Cambridge. 760 Mass. Av.
 1886 Norton, Eben Carver....Norwood. 792 Washington St.
 1903 Norton, George Edward...Cambridge. 102 River St.
 1900 Norton, George Paul.....Fitchburg. 24 Prichard St.
 1910 Norton, Herbert Rozelle...Dorchester (Boston). 11 Bloomfield St.
 1881 Noyes, Ernest Henry.....Newburyport. 12 Essex St.
 1908 Noyes, John Russell.....Brockton. 63 Main St.
 1905 Noyes, Margaret Louise...Boston. 103 St. James Av.
 1890 Noyes, Nathaniel Kingsbury Duxbury. Washington St.
 1891 Noyes, William.....Jamaica Plain (Boston). Office, Boston. 419 Boylston St.
 1905 Noyes, William Nelson....Salem. 12 Pleasant St.
 1914 Nute, Albert James.....Boston. U. S. Immigration Station.
 1898 Nute, Marion.....Dorchester (Boston). 461 Washington St.
 1903 Nye, Harry Royal.....Leominster. 27 Cotton St.

O

1901 Ober, Frank Roberts.....Roxbury (Boston). 300 Longwood Av.
 1904 Ober, Ralph Beverley....Springfield. 76 Maple St.
 1912 O'Brien, Carl Robert....Allston (Boston). 1230 Commonwealth Av.
 1903 O'Brien, Charles Thomas..Woburn. 11 Pleasant St.
 1905 O'Brien, Daniel Paul....New Bedford. 330 Union St.
 1912 O'Brien, Edward Joseph...East Boston (Boston). Office, Boston. 543 Boylston St.
 1911 O'Brien, Frederick Brockton. 12 Cottage St.
 William
 1903 O'Brien, John Francis....Charlestown (Boston). Office, Boston. 520 Beacon St.
 1911 O'Brien, John Francis....Fall River. Union Hosp.
 1911 O'Brien, John Francis....Taunton. State Hospital.
 1905 O'Brien, Joseph Jeremiah..Dorchester (Boston). 2175 Dorchester Av.
 1900 O'Brien, Thomas James...Roxbury (Boston). Office, Boston. 483 Beacon St.
 1902 O'Brien, Walter John Leo..Jamaica Plain (Boston). 218 South St.

1911 Pachanian, Sumpat Kevork. Lowell. 46 Middlesex St.
 1895 Packard, Edward Albert. Boston. 908 Beacon St.
 1903 Packard, Frederic Henry. Waverley. McLean Hosp
 1899 Packard, George Henry. White Rock, N. C.
 1907 Packard, Horace. Boston.
 470 Commonwealth Av
 1913 Packard, Loring Bradford. Brockton.
 Brockton Hospital
 1907 Paddock, Brace Whitman. Pittsfield. 7 North St.
 1876 Paddock, William Le Roy. Pittsfield. 7 North St.
 1893 Page, Albert Kidder. Boston. 339 Mass. Av.
 1894 Page, Calvin Gates. Boston. 128 Marlboro' St.
 1870 } Page, Charles Whitney {
 1909 } †1912 { Hartford, Conn.
 94 Woodland St.
 1898 Page, George Thornton. Cambridge. 113 Inman St.
 1892 Page, Hartstein Wendell. Baldwinsville (Templeton)
 1898 Pagé, Joseph Gregory Elias Southbridge.
 28 Hamilton St.
 1864 Paige, Nomus. †1906 Taunton. 49 Broadway.
 1905 Paine, Alonzo Kingman. Boston.
 366 Commonwealth Av
 1867 Paine, Amasa Elliott. Brockton. 439 Belmont Av
 1910 Paine, Harlan Lloyd. Gardner. State Colony.
 1908 Paine, Nathaniel Emmons. West Newton (Newton).
 1650 Washington St
 1896 Painter, Charles Fairbank. Newton. Office Boston.
 372 Marlboro' St.
 1904 Palfrey, Francis Winslow. Boston. 80 Marlboro' St.
 1893 Palmer, Ezra. Boston. 175 Dartmouth St.
 1892 Palmer, George Monroe. Cambridge. 23 Ware St.
 1882 Palmer, Lewis Merritt. Framingham.
 62 Concord St
 1888 Palmer, Sarah Ellen. Boston. 483 Beacon St.
 1912 Palmer, Walter Walker. Boston. Mass. Gen'l Hosp
 1905 Paquin, Joseph Ubalde. New Bedford.
 1306 Acushnet Av
 1901 Parcher, George Clarence. Saugus. 319 Central St.
 1890 Park, Francis Edwin. Stoneham. 350 Main St.
 1906 Parker, Albert Munro. Santa Maria, Calif.
 P. O. Box 355
 1904 Parker, Ernest Lawrence. Worcester. 12 Mass. Av.
 1914 Parker, Frederick Daniel. Needham. 101 May St.
 1902 Parker, Helen Schlesinger. Brookline. Warren St.
 1867 Parker, Moses Greely. Lowell. 11 First St.
 †1913
 1899 Parker, Ralph Walter. Lowell. 53 Central St.
 1914 Parker, Raymond Brewer. Winthrop. 148 Winthrop St
 1893 } Parker, Wallace Asahel. Medford. 101 Fellsway.
 1913 }
 1899 Parker, Walter Henry. Dorchester (Boston).
 1773 Dorchester Av
 1912 Parker, Willard Stephen. Boston. 355 Marlboro' St.
 1877 Parks, Edward Luther. Roxbury (Boston).
 640 Huntington Av
 1890 Parks, John Wilson. East Boston (Boston).
 132 London St
 1887 Parks, Silas Henry. Great Barrington.
 314 Main St
 1892 Parmelee, William Josiah. Springfield.
 254 North Main St
 1905 Parr, John. Methuen. Office. Lawrence
 539 Broadway
 1887 Parsons, Frank Sears. Dorchester (Boston).
 367 Adams St
 1914 Partridge, Thomas Cambridge.
 Jefferson 11 Magazine St
 1910 Parvey, Benjamin. Dorchester (Boston).
 62 Glenway St
 1906 Pascoe, William Whelan. Adams. 67 Summer St.
 1892 Patch, William Thurston. Roxbury (Boston).
 196 Warren St
 1902 Patten, Stephen Kerr. Roxbury (Boston).
 7 Waumbek St
 1905 Patterson, Alice Maria. South Hadley.
 Brigham Hal
 1900 Patterson, William Francis. Charlestown (Boston).
 385 Main S
 1905 Pattrell, Arthur Ellis. North Grafton (Grafton).

1899 Paul, Luther Gordon.....Boston. 321 Beacon St.
1887 Paul, Walter Everard.....Boston. 104 Marlboro' St.
1912 Pavlo, Samuel George.....Malden. 230 Bryant St.
1891 Payne, James Henry.....U. S. Navy (retired).
Boston.
344 Commonwealth Av.
1907 Peabody, Francis Weld....Cambridge. 13 Kirkland St.
1908 Pearce, Arthur Cushing....Brookline. Office, Boston.
543 Boylston St.
1914 Pearce, George Girdwood..New Bedford.
18 Seventh St.
1912 Pearl, Samuel Maurice....Boston. 39 Chambers St.
1902 Pearson, Charles Lusby....Newton. Office, Boston.
583 Beacon St.
1891 Pearson, Maurice Ware. 19 Pleasant St.
Wellesley
1899 Pease, Charles Wood.....Needham. 20 Dedham Av.
1892 Pease, Edward Allen.....Boston. 431 Beacon St.
1906 Pease, Lewis Waite.....Weymouth.
65 Washington St.
1895 Peck, Albert Fred.....Spencer. Mechanic St.
1907 Peck, Roy Hamilton.....Springfield. 15 Temple St.
1895 Pedrick, Stephen Augustus..Rowley.
1907 Peirce, Bradford Hendrick..Cambridge.
1717 Cambridge St.
1887 Peirce, Charles John.....Shirley Village (Shirley).
1899 Peirce, George Alphonso....Dorchester (Boston).
38 Sargent St.
1889 Peirson, Edward Lawrence..Salem. 13 Barton Sq.
1908 Pelletier, Alfred George....Winchendon.
261 Central St.
1913 Pemberton, Frank Arthur..Boston. 175 Dartmouth St.
1906 Penhallow, Dunlap Pearce..Boston. 46 Gloucester St.
1903 Penny, Herbert Thomas....Cliftondale (Saugus).
26 Jackson St.
1911 Penny, Mary McDermott....Cliftondale (Saugus).
26 Jackson St.
1914 Percy, Karlton Goodsell....Boston. 8 Gloucester St.
1914 Perkins, Franklin Haskins..Wrentham. State School.
1907 Perkins, Harry Bradford....Haverhill.
325 Washington St.
1914 Perkins, Roy Stanley.....Salem. Salem Hospital.
1907 Perkins, Thomas Tounge....Cliftondale (Saugus).
315 Lincoln Av.
1898 Perley, Roscoe Damon....Melrose.
63 West Emerson St.
1913 Perras, Louis Adéard.....New Bedford. 129 Ruth St.
1885 Perry, Arthur Pedro.....Jamaica Plain (Boston).
Office, Boston.
419 Boylston St.
1911 Perry, Charles Eugene....Haydenville (Williams-
burg). Hampshire Co. Sanatorium.
1883 } Perry, George Lewis.....Athol. 304 Main St.
1891 }
1913 Perry, Harold Edgar.....New Bedford.
St. Luke's Hospital.
1896 Perry, Henry Joseph.....Boston. 636 Beacon St.
1891 Perry, Herbert Brainard....Northampton. 187 Main St.
1885 Perry, Martha +1913 Taunton. 68 Broadway.
1908 Perry Sherman.....Tewksbury. State Infir'y.
1913 Peter, Alphonse Joseph....Newburyport. 68 Middle St.
1892 Peterson, Charles New Bedford.
Augustus Burton 90 Hillman St.
1913 Peterson, Hugo Oliver....Worcester. 44 Pleasant St.
1901 Peterson, John Adna.....Hingham.
1909 Petty, John Anderson....Brockton. 63 Main St.
1914 Pettingill, Olin Sewall....Wallum Lake, R. I.
State Sanatorium.
1913 Phaneuf, Louis Eusébe....Brookline.
Free Hospital for Women.
1912 Phelan, Edward Francis....North Brookfield.
1892 Phelps, John Samuel.....Boston.
76 Commonwealth Av.
1907 Phelps, Olney Draper.....Worcester. 452 Main St.
1892 Phelps, Olney Windsor Warren. Maple St.
+1914
1910 Philbrick, Roscoe Hunter..East Northfield
(Northfield).
1907 Phillips, Wilson Frank....Dorchester (Boston).
3 Whitman St.

1887 Phippen, Hardy.....Salem. 84 WASHINGTON Sq.
1904 Phippen, Walter Gray.....Salem. 31 Chestnut St.
1910 Phipps, Cadis.....Boston.
536 Commonwealth Av.
1880 Phipps, Walter Andros....Address unknown.
1896 Pickard, Isaiah Lovell....Concord Junction
(Concord).
1895 Pierce, Appleton Howe....Leominster. 100 West St.
1887 Pierce, Frank Benneville..Haverhill. 132 Main St.
1898 Pierce, George Burgess....Milton. Office, Boston.
178 Devonshire St.
1882 Pierce Matthew Vassar....Milton. Canton Av.
1886 } Pierce, Willard Henry.. { Bernardston. Office, Green-
1909 } field. 191 Main St.
1908 Pierce-Higgins, Eudora....Taunton. 175 High St.
1914 Pierson, Philip Hale.....Boston. 72 Pinckney St.
1886 Pigeon, James Cogswell Roxbury (Boston).
Du Maresque 27 Elm Hill Av.
1905 Pike, Forrest Fay.....Melrose. 67 Wyoming Av.
1892 Pike, Forrest Wiley.....Portsmouth, N. H.
4 Pleasant St.
1901 } Pike, Winfred Carle.....Boston. 82 Huntington Av.
1906 }
1900 Pillsbury, Boyden Harlin..Lowell. 8 Merrimack St.
1897 Pillsbury, Ernest Dean....West Somerville (Somer-
ville). 8 Curtis St.
1909 Pillsbury, Fitzroy Lowell. 9 Central St.
Farnsworth
1870 Pillsbury, George Harlin..Lowell. 58 Central St.
1874 Pillsbury, Warren Wilbur..Newburyport.
+1915 63 Washington St.
1862 Pinkham, George Edwin Lowell.
+1906 268 East Merrimack St.
1869 Pinkham, Joseph Gurney..Lynn. 64 Nahant St.
1895 Piper, Frank.....Boston. 39 Hancock St.
1910 Piper, Fred Smith.....Lexington. 462 Mass. Av.
1885 Pitcher, Herbert Frank....Haverhill.
50 Merrimack St.
1912 Pitcher, Hervey Brackett...Leominster. 82 Main St.
1901 Pitta, Joao Carlos da Silva..New Bedford. 57 Allen St.
1907 Place, Edwin Hemphill....Boston. 745 Mass. Av.
1899 Place, Ralph Waldo.....Somerville. 165 Medford St.
1907 Playse, Linn Foss.....Hopkinton. 14 Church St.
1879 Plimpton, Lewis Henry....Norwood. Walpole St.
1890 Plummer, Edward Charlestown (Boston).
Maverick Office, Boston.
583 Beacon St.
1897 Plummer, Frank Joseph....Malden. 162 Ferry St.
1898 Plummer, Frank Malden. 340 Pleasant St.
Wentworth
1906 Plunkett, Harold Brabazon..Lowell. 9 Central St.
1907 Pofcher, Elias Harry.....Worcester. 98 Winter St.
1887 Poirier, Emile.....Salem. 7 Harbor St.
1903 Poirier, Horace.....Salem. 173 Lafayette St.
1886 Pomeroy, Hiram Sterling....Boston. 657 Boylston St.
1886 Pomeroy, William Henry...Springfield. 310 State St.
1902 Pond, Bernard Wesley....Boston. 4 Concord Sq.
1908 Pond, Lucius Beverly.....Easthampton. 113 Main St.
1909 Poole, Laurence Earl.....Gardner. 63 Parker St.
1886 Pope, Emily Frances.....Boston. 163 Newbury St.
1887 Pope, Frank Fletcher.....Ashby.
1911 Popoff, Constantine.....Haverhill. 158 Main St.
1892 Porter, Charles Allen.....Boston. 254 Beacon St.
1873 } Porter, Frank Edward.. { Auburndale (Newton).
1877 } 409 Auburn St.
1903 Porter, Robert Brastow....North Easton (Easton).
4 Day St.
1895 Porter, William Townsend..Dover. Office, Roxbury.
(Boston).
240 Longwood Av.
1870 Post, Abner.....Boston. 16 Newbury St.
1904 Pote, Leonard Holden....West Somerville
(Somerville).
714 Broadway.
1889 Pothier, Joseph Charles....New Bedford.
247 Fourth St.
1901 Potter, Alexander Carleton..Cambridge. Office Boston.
186 Commonwealth Av.
1896 Potter, Frances Wason....Framingham.
11 Lexington Av.

- Q

- R

- 1898 Rabe, Edith Ruth Meek..... Boston. 481 Beacon St.
1914 Rabinovitz, Bernard..... Springfield. 1082 North S
1912 Rackemann, Francis Minot. Milton. Brush Hill Rd.
P. O., Readville
1892 Raddin, Frederick Stocker. Chelsea. 25 County Rd.
1892 Rand, John William..... Amesbury. 108 Main St.
1896 Rand, Richard Baxter..... North Abington.
(Abington
1897 Randall, Clifford Walcott.. Worcester. 723 Main St.
1900 Randall, George Merrill.... Lowell. 8 Merrinack St.
1896 Rawson, George Wallace... Amherst. 27 Main St.
1907 Raymond, Charles Stanley. South Hadley.
59 College S
1908 Raymond, Katharine Piatt. Wellesley.
Wellesley Colleg
1904 Raymond, Loring Hay..... Somerville.
144 Highland A
1902 Raynes, Myrton Berry..... Melrose.
42 West Emerson S
1899 Reagh, Arthur Lincoln..... West Roxbury (Boston).
39 Maple S
1905 Reardon, Daniel Quincy. 22 School St.
Bartholomew
1893 Reardon, Timothy Joseph.. Boston.
76 Commonwealth A
1896 Reddy, Joseph Warren..... South Boston (Boston).
211 K S
1873 Redfearn, Joseph..... Marlborough.
32 West Main S
1892 Redmond, James William.. South Boston (Boston).
512 Broadwa
1907 Redmond, Thomas Henry.. Lawrence.
256 Haverhill S
1908 Reed, Laurence Bradford.. Plymouth. 20 North St.
1908 Reed, Lucy Carleon..... Southbridge.
1898 Reed, Victor Augustus.... Lawrence. 477 Essex St
1883 Reed, William Gilman..... Southbridge. Main St.
1910 Reese, John Arnold..... Attleborough. 57 Bank S
1913 Regan, James Joseph..... South Boston (Boston).
220 Dorchester S
1912 Reggio, André William.... Boston. 40 Fairfield St.
1907 Reid, Isadore Eugene Jamaica Plain (Boston).
Rosenstein Office, Boston.
43 Tremont S
1910 Reid, William Duncan..... Newton. 36 Hyde Av.
1900 Reilly, James Aloysius.... Dorchester (Boston).
1675 Dorchester A
1911 Reilly, Thomas Edward.... Marlborough. 6 Newton S
1884 Reynolds, Edward..... Boston. 321 Dartmouth S
1889 Reynolds, Henry Vose..... Dorchester (Boston).
21 Cushing A
1906 Reynolds, John Timothy... Quincy. 90 Copeland St
1913 Reynolds, Ralph Leavitt... Waterville, Me. 207 Main
1866 Rice, Albert Raymond †1906 Springfield. 36 Temple
1906 Rice, Allen Galpin..... Springfield. 42 Maple S
1865 Rice, Austin Bradford Fiskdale (Sturbridge).
†1898
1866 Rice, Charles Henry..... Fitchburg. 12 Prichard
1893 Rice, Frederick Winslow... Brighton (Boston).
16 Elko
1908 Rice, John Evarts..... Worcester. 862 Main S
1903 Rice, Robert Astley..... Fitchburg. 2 Crescent
1896 Rice, Walter Henry..... Boston. 290 Newbury S
1903 Rich, Charles Edwin..... Lynn. 56 Estes St.
1894 Richards, Caroline Maria.. New York, N. Y.
601 115th
1913 Richards, Cyril Godfrey.... Boston.
Long Island Hospit
1883 Richards, George Edward Boston. 11 Gloucester
†1911
1893 Richards, George Lyman... South Dartmouth (Dr
mouth). Office, Fall Riv
124 Franklin
1891 Richardson, Anna Gove.... Boston. 483 Beacon St
1888 Richardson, Benjamin Lynn. 20 Silsbee St.
Franklin
1903 Richardson, Charles Pittsfield. S Bank Row
Harner

1907 Richardson, Cheslie Alvah Clarence	West Somerville (Somerville). 731 Broadway.	1914 Roderick, Charles Elvin....	West Somerville (Somerville). 1139 Broadway.
1908 Richardson, Edward Peirson	Boston. 224 Beacon St.	1914 Rodger, James Yeams.....	Lowell. Lowell Gen. Hospital.
1904 Richardson, Frank Linden..	Boston. 543 Boylston St.	1903 Rodrick, Albert Fowler....	Fitchburg. 38 Prichard St.
1906 Richardson, Horace Kimball	Bradford, Me. Box 115.	1890 Rogers, Albert Edward....	Boston. 261 Beacon St.
1896 Richardson, Mark Wyman...	Jamaica Plain (Boston). Office, Boston. 67 Milk St, Room 23.	1909 Rogers, Edmund Augustus..	Brookline. 174 Harvard St.
1913 Richardson, Oscar.....	Boston. 483 Beacon St.	1883 Rogers, Frank Alvin.....	Everett. 534 Broadway.
1867 Richardson, William Lambert	Boston. 225 Commonwealth Av.	1914 Rogers, John Andrews.....	Lowell. Lowell Corp. Hospital.
1895 Richmond, Ernest Dalton...	Reading. 24 Woburn St.	1906 Rogers, Mark Homer.....	Allston (Boston). Office, Boston. 483 Beacon St.
1898 Richmond, Simon.....	Roxbury (Boston). 271 Humboldt Av.	1873 Rogers, Orville Forrest....	Dorchester (Boston). 465 Washington St.
1914 Riemer, Hugo Bruno Charles	Norwood. 62 Winter St.	1914 Rogers, Orville Forrest, Jr..	Dorchester (Boston). 465 Washington St.
1911 Riggs, Austen Fox.....	Stockbridge. Boston.	1890 Rolfe, William Alfred.....	Boston. 259 Beacon St.
1910 Riley, Augustus.....	536 Commonwealth Av.	1902 Rollins, Edwin Theodore...	Jamaica Plain (Boston). 17 Gordon St.
1907 Riley, Charles Allen.....	Allston (Boston). 96 Harvard Av.	1910 Rood, Adolphus Duncan...	Whitman. 414 South Av.
1900 Riley, Elizabeth Angela....	Boston. 645 Beacon St.	1910 Rood, Adolphus Duncan...	Dorchester (Boston). Office Boston. 419 Boylston St.
1906 Riley, John Henry.....	North Adams. 103 Main St.	1914 Root, Raymond Richmond...	Georgetown. 34 East Main St.
1898 Ring, Arthur Hallam.....	Arlington Heights (Arlington).	1868 Root, Richmond Barbour...	Georgetown. North St.
1906 Riordan, Walter Daniel....	Lawrence. 187 Newbury St.	1902 Rose, William Henry.....	Worcester. 9 Elm St.
883 Ripley, Frederick Jerome...	Brookton. 12 Cottage St.	1904 Rose, William Milton.....	Cambridge. 230 Prospect St.
904 Ripley, Horace Greeley....	Taunton. State Hospital.	1910 Rosen, David William.....	Boston. 321 Hanover St.
903 Ripley, William Littlefield.	Newton. 249 Center St.	1911 Rosenau, Milton Joseph....	Brookline. Office, Roxbury (Boston). 240 Longwood Av.
906 Riskey, Edward Hammond...	Boston. 527 Beacon St.	1907 } Rosenbloom, Carl Webber.	Holyoke. 245 Maple St.
904 Ritter, Henry.....	Springfield. 42 Main St.	1914 } Rothblatt, Harry Lewis....	Boston. 13 Allen St.
906 Roach, Alfred John.....	Tewksbury. State Infirmary.	1907 } Roughan, Charles Michael..	Lowell. 29 Bridge St.
1906 Robbins, Chandler.....	Boston. 396 Marlboro' St.	1885 Round, Arthur Morey.....	Norton. Taunton Av.
880 Robbins, Elliott Daniels....	Boston. 88 Tremont St.	1914 Rounseville, Wilfred	Attleborough. 40 Bank St.
1901 Robbins, Elmer Ellsworth...	New Bedford. 101 School St.	1906 Rowe, Carleton Allen.....	East Milton (Milton). Boston. 11 Ivy St.
1907 Robbins, Eugene Stanley...	New Bedford. 17 South 6th St.	1871 Rowe, George Howard	Malcolm †1911
191 Robbins, Fred Gibson.....	Salem. Office, Boston. 129 Marlboro' St.	1892 Rowen, Henry Stanislaus...	Brighton (Boston). Office, Boston. 520 Beacon St.
1906 Robbins, William Bradford...	Boston. 356 Marlboro' St.	1897 Rowley, William.....	Lanesville (Gloucester). 1087 Washington St.
1897 Roberts, Frederick Alpha...	Pittsfield. 230 North St.	1906 Roy, Joseph Napoleon....	Webster. 38 Main St.
1895 Roberts, Linneus Alton....	Dorchester (Boston). 699 Washington St.	1895 Royal, Herbert Benjamin	Harvard. Still River Rd.
1911 Robertson, Ewan Alexander	Lowell. 295 Central St.	1868 } Ruddick, William	South Boston (Boston). 502 Broadway.
1914 Robertson, Jessie Wilhelmine	Cambridge. 2253 Mass Av.	1891 } Henderson †1914	Ruel, Joseph Adjutor.....
1895 Robey, William Henry, Jr...	Boston. 202 Commonwealth Av.	1913 Ruel, Joseph Adjutor.....	Haverhill. 14 Main St.
1900 Robie, Alice Hatheway Purvis	Watertown. 102 Mt. Auburn St.	1905 Rumrill, Samuel Dudley...	Springfield. 46 Main St.
1898 Robie, Walter Franklin...	Baldwinsville (Templeton). Pine Terrace Sanatorium.	1892 Ruppel, Carl Emil Fraser...	Lynn. 23 Nahant St.
1914 Robins, Samuel Alexander...	Lynn. Lynn Hospital.	1888 Ruppel, Myra Daniel.....	Lynn. 23 Nahant St.
1902 Robinson, Harry Pringle...	Amesbury. 155 Main St.	1906 Rushford, Edward Allan...	Salem. 175 Lafayette St.
1914 Robinson, Henry Ashton...	Marlborough. 18 Cotting Av.	1908 Rushmore, Stephen.....	Boston. 522 Commonwealth Av.
188 Robinson, Lucy Morton †1915	Brookton. 7 Main St.	1898 Russell, Edward Ervin....	North Adams. 127 River St.
1913 Robinson, Samuel.....	Clifton Springs, N. Y. The Sanitarium.	1906 Russell, Frederick James...	Waverley. Box C.
1911 Robinson, Solomon.....	Worcester. 141 Green St.	1871 Russell, Frederick William	Winchendon. 51 Central St. †1913
190 Robinson, Thomas Johns...	Taunton. 56 Broadway.	1899 Russell, Simon James.....	Springfield. 154 Chestnut St.
1913 Robinson, William Henry...	Jamaica Plain (Boston). 470 Center St.	1905 Russell, Walter Burton....	Springfield. 796 State St.
1915 Robinson, William Perry...	Haverhill. 1403 Broadway.	1904 Ruston, Warren Dunn.....	West Somerville (Somerville). 744 Broadway.
1913 } Roche, Thomas Francis...	Blackstone.	1886 Ryan, Dennis Matthew....	Ware. 38 Pleasant St.
1918 Roche, Thomas Neil.....	Amesbury. 134 Main St.	1910 Ryan, Sylvester Edward...	Springfield. 13 Hancock St.
1914 Rochette, Edward Charles...	Worcester. 18 Portland St.	1912 Ryan, William Francis....	Lowell. 219 Central St.
1914 Rochford, Richard Augustine	South Boston (Boston). Carney Hospital.	1913 Ryan, William Patrick....	Holyoke. 260 Maple St.
191 Rockwell, Alfred Elijah Perkins	Worcester. 248 Main St.	1906 Ryder, Delano Richmond...	Fall River. 124 Franklin St.
1911 Rockwell, Herbert George...	Amherst. 25 Main St.	1901 Ryder, George Hale.....	Quincy. Office, Boston. 583 Beacon St.
1912 Roddy, Martin Bernard....	East Lynn (Lynn). 168 Chestnut St.	1882 Ryder, Godfrey.....	Malden. 321 Pleasant St.
		1914 Ryder, Walter Irenaeus...	South Boston (Boston). 576 Broadway.
			S
		1873 Sabine, George Krans.....	Brookline. 30 Irving St.
		1898 Sabine, Jane Downes Kelly.	Boston. 348 Marlboro' St.
		1911 Sadler, Roy Angelo.....	Boston. 1750 Washington St.

1904	Safford, Wilber Pray....	Brockton.	52 Pleasant St.	1903	Sears, Julia Seton.....	Address unknown.
1895	St. Clair, Austin Emery....	Framingham.	Office, Boston. 416 Marlboro' St.	1900	Sears, Stephen Hull.....	Yarmouth Port (Yarmouth).
1894	St. Denis, Joseph Nelson...	Mattapan (Boston).	32 Houston Av.	1905	Seaver, Edwin Pliny, Jr....	New Bedford. 179 William St.
1893	St. Germain, Joseph Pierre.	New Bedford.	13 South 6th St.	1914	Seavy, Horace Lester.....	Cambridge. 1 Frost St.
1912	Salles, John Murray.....	New Bedford.	113 Grinnell St.	1889	Seelye, Ralph Holland.....	Springfield. 73 Chestnut St.
1909	Sanborn, Byron.....	Topsfield.	Central St.	1902	Seelye, Walter Clark.....	Worcester. 390 Main St.
1876	Sanborn, Edwin Aaron.....	Somerville.	24 Franklin St. †1915	1905	Segur, Willard Blossom....	Enfield. Bridge St.
1883	} Sanborn, Frederick James.	Spencer.	Main St.	1908	Senesac, Archibald.....	New Bedford. Napoleon 1007 South Water St.
1888				1914	Sennott, John Ralph.....	Cambridge. 321 Broadway.
1903	Sanborn, Frederick Rodney.	New York, N. Y.	1 Gramerey Park.	1901	Sever, James Warren.....	Cambridge. Office, Boston. 234 Marlboro' St.
1902	Sanborn, George Phippen...	Brookline.	Office, Boston 366 Commonwealth Av.	1913	Sewall, Edgar Floyd.....	Somerville. 258 Broadway.
1897	Sanborn, John Wesley.....	Roxbury (Boston).	168 Humboldt Av.	1869	Seymour, Christopher †1908	Northampton. 79 Elm St.
1881	Sanborn, Perley Lewis.....	Marblehead.	79 Pleasant St.	1904	Seymour, Malcolm.....	Boston. 362 Commonwealth Av.
1870	Sanders, Charles Barton	Lowell.	475 Westford St. †1909	1911	Shadman, Alonzo Jay.....	West Roxbury (Boston). 157 Center St.
1909	Sandler, Samuel.....	Fall River.	298 Third St.	1881	Shanahan, John.....	Peabody. 69 Main St.
1904	Sanger, Guy Edward.....	Arlington.	707 Mass. Av.	1896	Shanahan, Thomas Joseph.	Brookline. 155 Aspinwall Av.
1893	Sargent, Ara Nathaniel....	Salem.	116 Federal St.	1910	Shanahan, Timothy Joseph.	Somerville. Office, Boston. 419 Boylston St.
1889	Sargent, George Amory....	Boston.	46 Hereford St.	1913	Shannahan, Richard Joseph	Worcester. 925 Main St.
1896	Sargent, George Bancroft..	Lawrence.	51 Jackson St.	1894	Shannon, Nat Vaughan....	Cambridge. 591 Mass. Av.
1907	Sargent, Oscar Franklyn	Lawrence.	105 Exeter St. Libbey	1914	Shapira, Victor Isaiah....	Dorchester (Boston). Office, Boston. 160 Huntington Av.
1905	Sargent, Walter Leslie....	Quincy.	1155 Hancock St.	1891	Shatswell, James Arthur...	Beverly. 9 Endicott St.
1913	Saunders, Edmund Louis....	Boston.	46 Gloucester St.	1895	Shattuck, Albert Milo.....	Worcester. 21 High St.
1908	Savignac, Arthur Noël....	Amesbury.	80 Friend St.	1873	Shattuck, Frederick.....	Boston. 135 Marlboro' St. Cheever
1896	Saville, Sumner Carruth...	Boston.	34 Newbury St.	1873	Shattuck, George Brune...	Boston. 183 Beacon St.
1884	Sawin, Charles Dexter.....	Somerville.	390 Broadway.	1908	Shattuck, George Cheever...	Boston. 205 Beacon St.
1892	Sawin, Robert Valentine...	Brimfield.		1912	Shaughnessy, Thomas Ahern	Leominster. 62 Main St.
1907	Sawyer, Alpha Reuben....	Roslindale (Boston).	6 Conway St.	1907	Shaw, Adam Ernest.....	Lowell. 137 Merrimack St.
1883	Sawyer, Edward Allen.....	Gardner.	402 Elm St.	1893	Shaw, Albert Joel.....	Boston. 79 Mountfort St.
1901	Sawyer, Edward Keyes....	Boston.	419 Boylston St.	1893	Shaw, Arthur John.....	Boston. 551 Boylston St.
1884	Sawyer, Elihu LeRoy.....	Roslindale (Boston).	6 Conway St.	1904	Shaw, John Port.....	Brockton. 6 North Main St.
1891	Sawyer, Walter Fairbanks.	Fitchburg.	67 Prichard St.	1909	Shaw, John William.....	Newburyport. 7 Orange St.
1888	Sayles, Joseph Borland....	Taunton.	35 City Square.	1897	Shaw, Thomas Bond.....	Worcester. 24 Oxford St.
1896	Scales, Robert Bass.....	Dorchester (Boston).	546 Washington St.	1877	Shaw, Thomas Pierpont	Lowell. 110 Eighteenth St. †1909
1912	Scanlan, Maurice Thomas..	Dorchester (Boston).	137 Dakota St.	1913	Shaw, Walter Augustus....	Springfield. 105 Ashley St.
1905	Scanlan, Thomas John....	Dorchester (Boston).	Office, Boston. 543 Boylston St.	1908	Shay, Charles Edwin.....	Roxbury (Boston). 136 Warren St.
1903	Scannell, David Daniel....	Boston.	366 Commonwealth Av.	1895	Shay, Thomas Maguire....	Roxbury (Boston). 88 Warren St.
1906	Scannell, James Joseph....	Mattapan (Boston).	Office, Boston. City Hall Annex.	1897	Shea, John Joseph.....	Beverly. 14 Bartlett St.
1912	Schadt, George Leonard....	Springfield.	350 Central St.	1906	Shea, Michael Ignatius....	Chicopee Falls (Chicopee). 112 Belcher St.
1910	Schillander, Carl Axel....	Springfield.	293 Bridge St.	1902	} Shea, Peter Owen.....	Worcester. 106 Millbury St.
1910	Schirmer, Joseph Walter...	Needham.	Office, Boston. 272 Newbury St.	1912		
1900	Schmidt, Frederick Sextus.	Roxbury (Boston).	179 School St.	1895	Shea, Thomas Bernard....	Boston. 74 Marlboro' St.
1906	Schmidt, Richard Diedrich.	Dorchester (Boston).	16 River St.	1909	Sheahan, George Maurice...	Quincy. 12 School St.
1909	Schneider, Harry Albert...	Pittsfield.	30 North St.	1897	Sheehan, Martin David....	Stoneham. 34 Pleasant St.
1898	Schneider, Jacob Philp....	Palmer.	10 Thorndike St.	1893	Sheehan, William Joseph...	Salem. 146 Federal St.
1905	Schofield, Otho Lester....	Wellesley Hills (Wellesley).		1905	Sheehan, William Joseph...	South Boston (Boston). 197 Broadway.
1900	Schorer, Cornelia.....	Roxbury (Boston).		1876	Sheldon, Chauncey.....	

1906 Shohan, Joseph.....Roxbury (Boston).
156 Humboldt Av.

1905 Shoninger, Lee Simon.....New York, N. Y.
64 West 56th St.

1894 Shores, Harvey Towle.....Northampton. 78 Main St.

1869 Shreve, Octavius Barrell Salem. 29 Chestnut St.
†1906

1914 Shulman, David Hermann..Roxbury (Boston).
106 Humboldt Av.

1897 Shultis, Frederick Charles..Leominster. 20 Main St.

1908 Sibley, Benjamin Ernest...Brookline. 1595 Beacon St.

1881 Sidney, Austin Wilbur Fitchburg. 24 Holt St.
†1895

1896 Silva, Francis Pierce.....Charlestown (Boston).
206 Main St.

1901 Simmons, Channing Boston. 317 Marlboro' St.
Chamberlain

1914 Simmons, Edward Burnside..Worcester. 7 Jaques Av.

1905 Simmons, Fred Albert.....Brockton. 63 Main St.

1903 Simmons, Hannah Worcester. 7 Jaques Av.
Coralynn

1914 Simmons, Ralph Hayward..Fall River. Union Hospital.

1912 Simon, Arthur Leslie.....Lawrence. 24 Buswell St.

1910 Simonds, Otis Franklin....Philadelphia, Pa.
Wells Hospital.

1885 Simpson, Charles Edward..Lowell. 9 Central St.

1890 Simpson, James Edwin....Salem. 26 Chestnut St.

1903 Sims, Frederick Robertson..Melrose. 79 West Foster St.

1905 Sinclitic, Guiseppe.....Lawrence. 3 Jackson Ter.

1903 Sise, Lincoln Fleetford....Medford. 12 Main St.

1896 Siskind, Alexander Louis...Lawrence. 272 Broadway

1913 Sisson, Mitchell.....East Boston (Boston).
26 Princeton St.

1863 Skinner, Edward Manning Boston. 586 Mass. Av.
†1903

1904 Slack, Francis Hervey.....Hyde Park (Boston).
Office, Boston.
City Hall Annex.

1910 Slater, Eleanor Mary.....Denton, Texas.
College of Industrial Arts.

1913 Slattery, John Richard....South Boston (Boston).
Office, Boston.
520 Beacon St.

1905 Sleeper, Frank Warren....Dorchester (Boston).
41 Virginia St.

1906 Slutskin, Maurice Louis...Springfield. 120 Main St.

1900 Small, Albert Ernest.....Melrose.
90 West Emerson St.

1908 Smalley, Fred Lyman.....Reading. 13 Hampden St.

1898 Smith, Alfred Charles.....Brockton. 7 Main St.

1893 Smith, Charles Morton....Boston. 437 Marlboro' St.

1900 Smith, Charlotte Manchester, N. H.
Stewartson 83 Hanover St.

1914 Smith, Conrad.....Boston. 143 Newbury St.

1901 Smith, Edward Shepard....Westfield. 3 Court St.

1912 Smith, Edwin Wallace....Boston. 19 Bay State Rd.

1902 Smith, Forster Hanson....Lowell. 832 Merrimack St.

1900 Smith, Frank Herbert....Hadley.

1894 Smith, Frank Simpson....Address unknown.

1895 Smith, Fred Stevens.....North Andover. 5 Third St.

1894 Smith, Frederick Glazier..Somerville.
145 Highland Av.

1882 Smith, George Carroll....Boston. 416 Marlboro' St.

1910 Smith, George Gilbert....Boston. 309 Marlboro' St.

1903 Smith, Hervey Lewis.....Springfield. 249 Union St.

1885 } Smith, Hiram Fred { Orange.
1892 } Markley { 155 South Main St.

1901 Smith, Howard Harry....Boston. 845 Boylston St.

1906 Smith, John Hall.....Roslindale (Boston).
Office, Boston.
419 Boylston St.

1910 Smith, John Jay.....Cambridge. 89 Inman St.

1887 Smith, Mary Ambra.....Boston. 33 Newbury St.

1889 Smith, Murdoch Campbell..Cynn. 3 Lee Hall.

1906 Smith, Myrtle.....Worcester. 831 Main St.

1897 Smith, Peter Matthew....Boston. 758 Tremont St.

1908 Smith, Richard Mason....Boston. 329 Beacon St.

1871 Smith, Samuel Finley....Indian Orchard
(Springfield).
97 Myrtle Av.

1906 Smith, Stafford Baker....New York, N. Y.
Hotel Bretton Hospital

1903 Smith, Theobald.....Jamaica Plain (Boston).
Office, Roxbury.
240 Longwood Av.

1894 Smith, Thomas Burke....Lowell. 107 Merrimack St.

1884 Smith, Walter Anson.....Springfield. 185 State St.

1914 Smith, William Benjamin Bondsville (Palmer).
Tyng

1914 Smith, William David....Boston.
99 Commonwealth Av.

1914 Smith, William Francis....Malden.
14 Wentworth Court.

1898 Smith, William Henry....Boston. 10 Gloucester St.

1891 Smith, William Lord.....North Grafton (Grafton).
Office, Boston.
2 Newbury St.

1894 Smithwick, Marsena Lexington. Office, Boston.
Parker 483 Beacon St.

1902 Smyser, Charles James....Harwich.

1911 Smyth, Duncan Campbell..Brookline. Office, Boston.
127 Newbury St.

1905 Smyth, Patrick Somers....Brookline. Office, Boston.
69 Newbury St.

1903 Snow, Frank Whipple.....Newburyport. 24 Essex St.

1899 Snow, Frederick Stedman..Roxbury (Boston).
166 Townsend St.

1908 Sobotky, Irving.....Boston.
366 Commonwealth Av.

1876 Somers, John Edward.....Cambridge. 1979 Mass. Av.

1894 Sopher, Curtis Levi.....Wakefield. 6 Avon St.

1897 Soule, Horace John.....Winthrop. 180 Winthrop St.

1904 Southard, Elmer Ernest...Cambridge. Office,
Roxbury (Boston).
240 Longwood Av.

1904 Southard, Mabel Austin....Cambridge. 70 Francis Av.

1900 Soutter, Robert.....Boston. 133 Newbury St.

1904 Spaid, Charles Jacob.....Springfield.
344 Belmont Av.

1897 Spalding, Fred Maurice....Brookline. Office, Boston.
390 Commonwealth Av.

1903 Spalding, Roger.....Duxbury. Washington St.

1884 Sparhawk, Clement Willis..Danvers. 148 Locust St.

1914 Sparks, Ernest Elliot....Cochituate (Framingham).
Main St.

1910 Sparrow, Charles Atsatt..Worcester. 1 Main St.

1910 Spaulding, Edith Rogers...Framingham. P. O. Box 99.

1911 Spaulding, John Doliver Mansfield. Office, Boston.
360 Commonwealth Av.

1874 Spear, Edmund Doe.....Jamaica Plain (Boston).
Office, Boston.
100 Boylston St.

1907 Spear, Louis Mahlon.....Brookline. Office, Boston.
483 Beacon St.

1909 Spooner, Lesley Hinckley..Boston. 260 Clarendon St.

1865 Sprague, Francis Peleg....Boston.
229 Commonwealth Av.

1873 } Sprague, Rufus William { Charlestown (Boston).
1891 } 376 Main St.

1913 Sprague, Russell Bradford..Boston.
514 Commonwealth Av.

1904 Sproull, John.....Haverhill.
50 Merrimack St.

1879 Squier, Angelo Orin.....Springfield. 293 Bridge St.

1892 Stacey, Charles Franklin...Boston. 456 Audubon Rd.

1902 Stack, Charles Francis....Hyde Park (Boston).
1315 River St.

1908 Stack, John Joseph.....Dorchester (Boston).
Office, Boston.
1 Beacon St.

1913 Stafford, Frank Dalmon...North Adams.
56 Summer St.

1880 Standish, Myles.....Boston. 72 St. James Av.

1909 Stanley, Francis Guy.....Beverly. 144 Cabot St.

1895 Stanley, Josiah Murch....Northborough. Main St.

1907 Stansfield, Clarence Fall River.
Winfield 1274 North Main St.

1903 Stanton, Joseph.....Newton.
433 Washington St.

1908 Stanwood, Frederic Arthur..Wellesley Hills (Wellesley).
342 Washington St.

1905 Staples, Clarence	Malden.	339 Pleasant St.	1894 Stone, James Savage.....	Boston.	231 Marlboro' St.
	Hathorne		1912 Stone, Jane Gray.....	Jamaica Plain (Boston).	821 Center St.
1912 Staples, Hall.....	West Acton (Acton).		1854 Stone, Lincoln Ripley	Newton.	131 Vernon St.
1893 Stapleton, Richard Henry..	Worcester.	48 Trumbull St.		†1907	
1893 Starbird, Edward Perley...	Dorchester (Boston).		1896 Stone, Moses Cornelius	Wellesley.	18 Belair St.
		9 Monadnock St.		†1908	
1910 Stearns, Albert Warren....	Billerica. Office, Boston.		1905 Stone, Ralph Edgarton....	Beverly.	360 Cabot St.
	520 Commonwealth Av.		1909 Stone, Thomas Newcomb...	Haverhill.	28 White St.
1903 Stearns, Robert Thomas...	Mattapan (Boston).		1905 Stoneman, Edgar Amos....	Springfield.	14 Clinton St.
		24 Hazelton St.	1904 Stoodley, Harry Marr.....	Somerville.	
1868 Stebbins, George Stanford	Springfield.	17 Maple St.			283 Highland Av.
	†1905		1888 Storer, Malcolm.....	Boston.	476 Boylston St.
1874 Stedman, George.....	Boston.	380 Newbury St.	1906 Storrs, Henry Randolph....	Vancouver, B. C.	
1874 Stedman, Henry Rust.....	Brookline. Office, Boston.				342 Bender St.
		48 Beacon St.	1891 Stowell, Edmund Channing	Dublin, N. H.	
1892 Stedman, Joseph Cyrus....	Jamaica Plain (Boston).		1903 Stowell, Frank Edgar.....	Worcester.	120 Main St.
		7 Lakeville Pl.	1895 Stowell, Joab.....	North Amherst (Amherst).	
1901 Steele, Albert Edward.....	Roslindale (Boston).		1892 Stowell, Sarah Russell....	Dublin, N. H.	
		79 Robert St.	1902 Stratton, Ralph Ricker....	Melrose.	654 Main St.
1913 Steeves, Ernest Colpitt....	Essex. Main St.		1904 Street, Charles Edward....	Springfield.	2 Maple St.
1907 Stephens, Frederick Newton	Somerville.	435 Medford St.	1900 Street, Lionel Alexander	Shanghai, China.	
1883 Stephenson, Franklin	U. S. Navy (retired).			Burnet	39 Peking Rd.
	Bache †1913	Pittsfield. 146 Bartlett Av.	1914 Streeter, Edward Clark....	Boston.	413 Beacon St.
1914 Sternberg, Joseph Edward..	Roxbury (Boston).		1905 Streeter, John Frank.....	Springfield.	55 Walnut St.
		244 Warren St.	1913 Strom-Lindsay, Marie....	Tewksbury. State Inf.	
1898 Stetson, Frank Eliot.....	New Bedford.	334 Union St.	1913 Strong, Richard Pearson...	Boston. Office, Roxbury.	
1898 Stetson, Frederick Winslow.	Roxbury (Boston).				240 Longwood Av.
		504 Warren St.	1886 Stuart, Frederic William..	South Boston (Boston).	
1896 Stetson, Halbert Greenleaf.	Greenfield.	17½ Federal St.			550 Broadway.
1869 Stevens, Andrew Jackson	Malden.	539 Main St.	1880 } Stuart, James Henry.....	Boston.	236 Clarendon St.
			1890 }		
1894 Stevens, Charles Benjamin.	Worcester.	61 Pearl St.	1898 Stubbs, Frank Raymond...	Newton.	510 Center St.
1868 Stevens, Edmund Horace...	Cambridge.	1911 Mass. Av.	1898 Sturgis, Benjamin	Salem.	28 Pleasant St.
1874 Stevens, George Beckwith	Dorchester (Boston).			Franklin, Jr.	
		346 Seaver St.	1896 Sturgis, Walter Horatio	Allerton (Hull).	
1906 Stevens, Harold Elmer	Lewiston, Me.	374 Main St.		Wakeman	
	Ellsworth		1905 Sturnick, Max.....	Dorchester (Boston).	
1897 Stevens, Henry Burt.....	West Roxbury (Boston).				12 Columbia Rd.
	Office, Boston.		1892 Stutson, William Peckham.	Cummington.	Main St.
		419 Boylston St.		†1915	
1891 Stevens, Henry Lawrence..	New Bedford.		1899 Sughrue, Dennis Francis...	Roxbury (Boston).	
		129 Purchase St.			430 Dudley St.
1908 Stevens, Horace Paine....	Cambridge.	14 Garden St.	1911 Suitor, Henry Albert.....	South Deerfield	
1899 Stevens, Ralph Emerson...	Marlborough.			(Deerfield).	Graves Av.
		133 West Main St.	1910 Sullivan, Andrew Joseph...	Brockton.	155 Main St.
1897 Stevens, Sara Elmina.....	West Roxbury (Boston).		1907 Sullivan, Charles Brent...	Boston.	520 Beacon St.
		31 Linnet St.	1906 Sullivan, Cornelius	South Braintree	
1886 Stevens, Seriah.....	Roslindale (Boston).			Augustine	(Braintree).
		942 South St.			835 Washington St.
1883 Stevens, William Caldwell.	Worcester.	17 Russell St.	1903 } Sullivan, Edward		
1883 } Stevens, William Stanford.	Boston.	295 Beacon St.	1914 }	Coppinger	Springfield. 317 Main St.
1913 }			1903 Sullivan, Florence	Haverhill.	42 White St.
1914 Stevenson, Effie Allyne....	North Grafton (Grafton).			Augustine	
	State Colony.		1914 Sullivan, Francis Augustus.	Cambridge.	
1904 Stevenson, Willis Mack....	North Easton (Easton).				376 Cambridge St.
	Lincoln St.		1883 Sullivan, James Edmund...	Providence, R. I.	
1909 Stewart, Ralph Carroll....	Lowell.	408 Middlesex St.			254 Wayland Av.
1909 Stewart, Vernon Champney	Woburn.	16 Summer St.	1883 Sullivan, James Francis...	Lowell.	230 Pawtucket St.
1903 Stick, Henry Louis.....	Worcester. State Asylum.		1901 Sullivan, John Joseph.....	Dorchester (Boston).	
1881 Stickney, Clifford Webster.	Holden.	Main St.			93 Bowdoin St.
1892 Stickney, Edwin Pangman.	Arlington.	58 Pleasant St.	1907 Sullivan, John Thomas....	Dorchester (Boston).	
1884 Stickney, George Augustus.	Beverly.	205 Cabot St.		Office, Boston.	
1891 Stiles, Fred Merritt.....	Waltham.	292 Moody St.			520 Beacon St.
1908 Still, Carroll Wilder.....	Haverhill.	156 Main St.	1913 Sullivan, Joseph Cornelius.	Springfield.	Mercy Hosp.
1880 Stimson, John Woodbury...	Fitchburg.	101 Prichard St.	1905 Sullivan, Joseph Lawrence.	Roxbury (Boston).	
1907 Stockbridge, Alberto Horatio	Lynn.	69 Park St.			89 Waverley St.
1899 } Stockwell, Edgar	Great Barrington.		1913 Sullivan, Leo Jeremiah....	Fall River.	379 Whipple St.
1911 }	Washburn	6 Church St.	1909 Sullivan, Martin George...	Winchendon.	
1899 Stockwell, Herbert Emmons	Stockbridge.	Main St.			216 Central St.
1899 Stoddard, Mortimer Joseph.	Springfield.	106 Bay St.	1891 Sullivan, Michael Francis..	Lawrence	251 Oak St.
1914 Stokes, Leroy Tyler.....	Haverhill.		1913 Sullivan, Patrick Joseph...	Dalton.	10 Carson Av.
		355 Washington St.	1889 Sullivan, William Joseph...	Lawrence.	267 Essex St.
1887 Stone, Arthur Kingsbury...	Boston.	44 Fairfield St.	1901 Sumner, Harry Herbert....	Lowell	4 Merrimack Sq.
1893 Stone, Byron.....	North Oxford (Oxford).		1896 Sumner, Philip Sosnoski...	Boston.	28 Westland Av.
1913 Stone, Charles Edwin.....	Lynn.	145 No. Common St.	1910 Supple, Edward Augustine.	Boston.	409 Marlboro' St.
1885 Stone, Charles Sinclair....	Boston.	752 Tremont St.	1900 Swain, Howard Townsend..	Boston.	
1886 Stone, Frank Ellsworth....	Lynn.	92 So. Common St.			226 Commonwealth Av.
1889 Stone, George Arthur.....	Pigeon Cove (Rockport).		1865 Swan, Charles Walter	Lowell.	
1910 Stone, George Henry.....	Boston. City Hospital.			†1903	119 Livingstone Av.
1914 Stone, Henry Edward.....	Dorchester (Boston).		1908 Swan, Lawrence Clarke....	Beverly.	23 Bow St.
		41 Fowler St.			

1882 Swan, Roscoe Wesley..... Worcester. 41 Pleasant St.
 1885 Swan, William Donnison... Cambridge. 167 Brattle St.
 1913 Swanson, Axel Fridolf.... Cummington.
 1891 Swasey, Edward..... Worcester 390 Main St.
 1863 Swasey, Oscar Fitzallan Beverly. 24 Hale St.
 †1900
 1912 Sweeney, Bartholomew Fitchburg.
 Philip 252½ Water St.
 1908 Sweeney, Edward Joseph... Springfield. 2½ Main St.
 1911 Sweeney, Michael Thomas... Norfolk Downs (Quincy). Hancock St.
 1895 Sweet, Frederick Benoni... Springfield. 81 Chestnut St.
 1893 Sweetsir, Charles Leslie... Lowell. 276 Westford St.
 1889 Sweetsir, Frederick Merrimac. Ellsworth
 1907 Swift, Edith Hale..... Boston. 110 Bay State Road.
 1901 Swift, Henry Marshall.... Portland, Me. 30 Deering St.
 1910 Swift, John Baker..... Boston. 421 Marlboro' St.
 1908 Swift, Milne Barker..... Fall River. 489 Walnut St.
 1907 Swift, Walter Babcock.... Boston. 110 Bay State Road.
 1905 Sylvester, Albie Warren... Pittsfield. 150 North St.
 1901 Sylvester, Charles Porter... Hull. Office, Boston. 460 Audubon Road.
 1914 Sylvester, Nathan West Somerville (Somerville). 1121 Broadway.
 1907 Sylvester, Philip Haskell... Newton Center (Newton). 866 Beacon St.
 1893 Sylvester, William Hillman... Natick. 6 Clarendon St.
 1900 Symonds, Alice Gertrude... Haverhill. 175 Main St.
 1893 Synan, William Edward... Fall River. 620 William St.

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1897 Taft, Albert Atherton.... Keene, N. H. 56 Court St.
 1906 Talbot, Fritz Bradley.... Boston. 311 Beacon St.
 1883 Tallman, Augustus East Boston (Boston). Littlefield 9 Princeton St.
 1894 Taylor, Edward Wyllys.... Boston. 457 Marlboro' St.
 1903 Taylor, Erwin Hartwell... Pittsfield. 316 North St.
 1882 Taylor, Frederic Weston... Cambridge. 1735 Mass. Av.
 1901 Taylor, Frederick Leon.... Jamaica Plain (Boston). 321 Center St.
 1893 Taylor, George Lyman.... Holyoke. 247 Maple St.
 1900 Taylor, James, Jr..... Worcester. 49 Pearl St.
 1888 Taylor, Jubal George.... Brookline. 437 Harvard St.
 1909 Taylor, Roy Arnold..... Waltham. 266 Moody St.
 1908 Taylor, Walter..... Florence (Northampton). 70 Maple St.
 1908 Teahan, William..... Holyoke. 245 Maple St.
 1909 Tedford, Ada Helena.... Woburn. 51 Pleasant St.
 1880 Temple, William Franklin... Boston. 499 Beacon St.
 1913 Temple, William Boston. 499 Beacon St. Franklin, Jr.
 1914 Ten Broeck, Carl..... Boston. 2 Walnut St.
 1893 Ten Broeck, Stanton Jacob... Orange. 15 Grove St.
 1891 Tenney, Benjamin..... Boston. 308 Marlboro' St.
 1886 Tenney, John Arthur..... West Roxbury (Boston). Office, Boston.
 1894 Tenney, William Northend... Canton. Office, Boston. 419 Boylston St.
 1913 Tennis, Matthew Nicholas... Fall River. Union Hosp. 419 Boylston St.
 1892 Thayer, Eugene..... Roxbury (Boston). Office, Boston. 419 Boylston St.
 1882 Thayer, George Dickinson... Northampton. 75 South St.
 1901 Thayer, Hartley Wales.... Newtonville (Newton). 355 Walnut St.
 1914 Thom, Douglas Armour.... Monson. State Hospital.
 1914 Thomas, Caroline Louise... Malden. 43 Florence St.
 1911 Thomas, Charles Holt.... Cambridge. 1718 Mass. Av.
 1912 Thomas, Elmer Ellsworth... Northampton. 160 Main St.
 1899 Thomas, John Jenks.... Boston. 88 Bay State Rd.
 1911 Thomas, William Kilpack Cambridge. 1718 Mass. Av. Smith
 1897 Thomes, John Blanchard... Pittsfield. 86 North St.
 1914 Thompson, Charles Arthur... Newton Highlands (Newton). 1099 Walnut St.

1903 Thompson, Charles Edward... East Gardner (Gardner). State Colony.
 1891 Thompson, Charles Oscar... Boston. 589 Beacon St.
 1870 Thompson, Frederick Fitchburg. 3 Pleasant St. Henry
 1904 Thompson, Frederick Fitchburg. 168 Prichard St. Henry, Jr.
 1906 Thompson, George Hocken... North Adams. 18 Ashland St.
 1896 Thompson, John Joseph.... Webster. 16 Lake St.
 1898 Thompson, Peter Hunter... Boston. 308 Commonwealth Av.
 1899 Thompson, Richard Henry... Malden. 82 Summer St.
 1904 Thompson, Wellington Manchester, N. H. 6 Main St. Andrew
 1899 Thorn, Edwin Cyrus..... Deerfield.
 1887 Thorndike, Augustus..... Boston. 601 Beacon St.
 1887 Thorndike, Paul..... Boston. 24 Marlboro' St.
 1903 Thorndike, Townsend Boston. 20 Newbury St. William
 1893 Thornton, James Brown... Boston. 168 Huntington Av.
 1911 Thorpe, Burton Durrell.... Newport, N. H.
 1907 Thurber, Madison Dorchester (Boston). Templeton 91 Savin Hill Av.
 1890 Tibbetts, James Thomas... Mineola, N. Y.
 1890 } Tigh, Frederick..... Newburyport. 134 High St.
 1904 }
 1908 Tighe, Michael Aloysius.... Lowell. 9 Central St.
 1876 Tilden, Frank Elmer..... North Easton (Easton). 9 Canton Road.
 1899 Tilden, Irving Niles..... Mattapoisett. Barstow St.
 1913 Tilton, Earle Edward..... Allston (Boston). Office, Boston. 483 Beacon St.
 1892 Tilton, Frank Herbert.... East Boston (Boston). 15 Princeton St.
 1882 Tilton, Josiah Odin..... Lexington.
 1911 Timmins, Edward Francis... South Boston (Boston). 527 Broadway.
 1901 Tingley, Louisa Paine.... Boston. 9 Mass. Av.
 1906 Tinkham, Oliver Goldsmith... Brighton (Boston). Office, Boston. 527 Beacon St.
 1893 Tirrell, Vinson Meader.... South Weymouth. (Weymouth).
 1881 Titcomb, George Eugene... Concord. 7 Sudbury St.
 1912 Titus, Raymond Stanton... Boston. 31 Mass. Av.
 1902 Tobey, Edward Nelson.... St. Louis, Mo. 3634 Shenandoah Av.
 1880 Tobey, George Loring.... Clinton. 205 Church St.
 1907 Tobey, George Loring, Jr... Boston. 416 Marlboro' St.
 1886 Tolman, Julia..... Arlington. 695 Mass. Av.
 1913 Tomkies, James Scott.... Rochester, Minn. St. Mary's Hospital.
 1906 Toohey, Thomas Victor.... Brookline. Office, Roxbury (Boston). 129 St. Alphonsus St.
 1911 Toppan, Roland Lesley... Newburyport. 31 Green St.
 1904 Torbert, James Rockwell... Boston. 252 Marlboro' St.
 1914 Torney, George Henry.... Brookline. Bournewood Hospital.
 1913 Torrey, Arthur Stanley.... Gloucester. 164 East Main St.
 1896 Torrey, John Paine..... Andover. 15 Elm St.
 1872 Torrey, Samuel William Beverly. 108 Cabot St. †1909
 1905 Tower, Freeman Augustus... Derry, N. H.
 1914 Towle, Clarence Clarke.... Somerville. 24 Prospect Hill Av.
 1908 Towle, Edwin Dudley.... Salem. 2 Mason St.
 1891 Towle, Harvey Parker.... Boston. 453 Marlboro' St.
 1877 Towle, Henry Charles.... Dorchester (Boston). 1428 Dorchester Av.
 1885 Townsend, Charles Wendell... Boston. 76 Marlboro' St.
 1901 Townsend, David..... River Glade, N. B.
 1901 Tozier, Charles Herman... Winchester. Office, Boston. 100 Boylston St.
 1891 Tracy, Edward Aloysius.... South Boston (Boston). 489 Broadway.
 1905 Tracy, John Matthew.... Springfield. 166 Chestnut St.
 1887 Tracy, Thomas Henry.... Address unknown.

- 1908 Watson, John William.... Boston. 613 Beacon St.
 1911 Watters, Henry..... Newton Center (Newton).
 661 Commonwealth Av.
 1907 Watters, William Henry.. West Roxbury (Boston).
 Office, Boston.
 419 Boylston St.
 1894 Watts, Henry Fowler..... Dorchester (Boston).
 Ransford 6 Monadnock St.
 1907 Watts, Joseph Palmer.... Wakefield. 223 Nahant St.
 1908 Weaver, Harry Vernon.... New Bedford.
 161 William St.
 1908 Webb, Harold Randall.... Arlington. 22 Pleasant St.
 1885 Webber, Amos Paterson... New Bedford. 250 Union St.
 1880 Webber, Frederick Ward.. Newton. 465 Center St.
 1865 Webber, Samuel Gilbert Brookline. 60 Gorham Av.
 †1911
 1888 Webster, George Arthur... Boston. 419 Boylston St.
 1859 Webster, Joseph Rowe North Lexington (Lexington).
 †1908 87 Hancock St.
 1890 Weeks, Joshua Franklyn.. New Bedford. County Rd.
 1894 Weiser, Walter Rupert.... Springfield. 97 Chestnut St.
 1894 Welch, Edward John..... Lowell.
 10 East Merrimack St.
 1913 Weller, John Henry..... State Farm (Bridgewater).
 1846 Wellington, James Lloyd Swansea.
 †1883
 1900 Wells, Abner Toothaker... Canton, Ohio.
 315 Cherry Av., W. E.
 1912 Wells, Charles Edward... Boston. 233 Charles St.
 1907 Wells, David Washburn... West Newton (Newton).
 Office, Boston. Hotel
 Westminster, Copley Sq.
 1878 Wells, Frank..... Boston. 120 Franklin St.
 1906 Wells, Orion Vassar..... Westford.
 1891 Wentworth, Arthur Howard Boston. 352 Marlboro' St.
 1909 Wentworth, Mark Hunking Boston. 86 Bay State Rd.
 1904 Wernick, Ben Zion G..... Roxbury (Boston). Office.
 Boston. 259 Hanover St.
 1874 Wescott, William Henry Roxbury (Boston).
 †1913 66 Clifton St.
 1880 West, Edward Graeff..... Roxbury (Boston).
 630 Warren St.
 1910 West, Frederick Orin.... Woburn. 55½ Pleasant St.
 1894 West, George Leon..... Newton Center (Newton).
 860 Beacon St.
 1894 Weston, George Dake..... Springfield. 70 Main St.
 1912 Wetherbee, Lucy Emma.... Worcester. 2 King St.
 1882 Wetherbee, Roswell..... Cambridge. 798 Mass. Av.
 1898 Wetherell, Arthur Bryant.. Holyoke. 180 Chestnut St.
 1884 Wheatley, Frank George.. North Abington (Abington).
 174 Adams St.
 1893 Wheeler, Alfred Augustus. Leominster.
 48 Mt. Pleasant Av.
 1894 Wheeler, Charles Douglas.. Worcester. 18 Chestnut St.
 1908 Wheeler, Charles Holmes.. Haydenville
 (Williamsburg).
 1897 Wheeler, Emma Hammond New Bedford.
 57 Morgan St.
 1870 Wheeler, Leonard..... Worcester. 12 Chestnut St.
 1900 Wheeler, Lucia Anna..... Wernersville, Pa.
 State Asylum.
 1906 Whelan, Charles..... Hingham. Central St.
 1916 Whelan, Edmond Vincent.. Bridgewater. 35 School St.
 1894 Whipple, Farrington Boston. 1079 Boylston St.
 Hasham
 1885 Whitaker, Clarence Wilder Worcester. 44 Pleasant St.
 1905 Whitcher, Burr Royce.... West Somerville (Somerville).
 1010 Broadway.
 1884 Whitecombe, Charles Reed.. Roslindale (Boston).
 758 South St.
 1910 White, Arthur Joseph.... Dorchester (Boston).
 5 Houghton St.
 1894 White, Belle Platt..... Springfield. 182 Sumner Av.
 1893 White, Charles James.... Boston. 259 Marlboro' St.
 1902 White, Clifford Allen.... Granville. P. O. Box 150.
 1872 White, Emory Lincoln.... Somerville.
 †1915 124 Highland Av.
 1914 White, Everett..... Lynn. 17 Marianna St.
 1896 White, Franklin Warren... Boston. 322 Marlboro' St.
 1914 White, George Arthur.... Cambridge.
 170 Harvard St.
 1912 White, Henry Alverado.... Taunton. 139 Bay St.
 1882 White, Herbert Warren... Roxbury (Boston).
 151 Humboldt Av.
 1856 White, James Clarke †1911 Boston. 259 Marlboro' St.
 1910 White, John Robert..... Lynn. 166 Washington St.
 1893 White, Leon Edward..... Wellesley. Office, Boston.
 397 Marlboro' St.
 1872 White, Levi..... Worcester. 7 Gates St.
 1909 White, Lucy Nye..... Winthrop.
 818 Winthrop Av.
 1899 White, Michael William... Somerville. 42 Bow St.
 1911 White, Paul Dudley..... Boston. Mass. Gen. Hos.
 1913 White, Robert Marshall... Dorchester (Boston).
 276 Bowdoin St.
 1892 White, William Allen.... Roxbury (Boston).
 249 Warren St.
 1894 Whitehill, George Edward. Everett. 516 Broadway.
 1897 Whiteside, George Portland. Ore.
 Shattuck 710 Dekum Bldg.
 1892 Whiting, George Somerville.
 Washington Whitney 282 Broadway.
 1886 Whitney, Charles Melville. Boston.
 386 Commonwealth Av.
 1882 Whitney, Edward Melville. New Bedford.
 27 South 6th St.
 1905 Whitney, Edward William. Indian Orchard (Springfield).
 162½ Main St.
 1910 Whitney, George Burgess.. Haverhill.
 252 Washington St.
 1901 Whitney, Harriet Wiley... Indian Orchard (Springfield).
 162½ Main St.
 1905 Whitney, Ray Lester..... Waverley (Belmont).
 McLean Hospital.
 1874 Whitney, William Fiske... Boston. 228 Marlboro' St.
 1904 Whiton, Ross Kittredge... Bedford.
 1910 Whittemore, William Cambridge. 39 Brattle St.
 Stewart
 1906 Whittemore, Wyman..... Boston. 330 Dartmouth St.
 1891 Whitten, George Edwin... Haverhill. 154 Main St.
 1887 Whittier, Francis Fremont. Brookline. 94 Harvard St.
 1900 Whoriskey, John Joseph.. Cambridge. 1712 Mass. Av.
 1914 Wickham, Thomas William South Boston (Boston).
 Carney Hospital.
 1874 Wight, Daniel Webster West Medford (Medford).
 †1902 86 Boston Av.
 1891 Wilbur, Hubert Granville. Fall River.
 292 North Main St.
 1887 Wilbur, Sarah Mann..... Springfield. 319 State St.
 1910 Wilcox, De Witt Gilbert... Brookline. Office, Boston.
 419 Boylston St.
 1907 Wilcox, Henry Hopson.... Springfield.
 151 North Main St.
 1892 Wilder, Raymond Sargent.. Briarcliff Manor, N. Y.
 1906 Wilder, Winford Oliver... Pittsfield. 34 Fenn St.
 1906 Wilinsky, Charles Francis. Boston. 80 Green St.
 1914 Wilkins, George Amory.... Revere. 646 Beach St.
 1900 Wilkins, George Clarence.. Manchester, N. H.
 795 Elm St.
 1909 Wilkins, Samuel Henry... West Medford (Medford).
 36 Harvard Av.
 1898 Williams, Abram Case.... Springfield. 137½ State St.
 1894 Williams, Augusta Gilbert. Brookline. 278 Walnut St.
 1887 Williams, Charles Crosby. Pasadena, Cal.
 943 Los Robles Av.
 1874 } Williams, Charles Herbert { Milton. Office, Boston.
 1895 } 1069 Boylston St.
 1902 Williams, Edward Denison. Easthampton. 153 Union St.
 1894 Williams, Edward Russell. Cambridge. Office, Boston.
 1069 Boylston St.
 1872 Williams, Edward Tufts Roxbury (Boston).
 †1910 125 Dudley St.
 1877 Williams, Francis Henry.. Boston. 505 Beacon St.
 1894 Williams, Frank Percival.. Brookline. Office, Boston.
 419 Boylston St.
 1880 Williams, Harold..... Boston. 528 Beacon St.
 1897 Williams, Harry Edwin... Mount Vernon, Me.
 1887 Williams, Henry Clarence. Boston. 74 Boylston St.
 1899 Williams, Hugh..... Boston. 301 Beacon St.
 1906 Williams, John Thomas.... Boston. 483 Beacon St.
 1882 Williams, Joseph..... Dorchester (Boston).
 12 Bloomfield St.

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7

- 1888 Zabriskie, Frank Hunter..Greenfield. 426 Main St.
1913 Zimmerman Henry.....Springfield. 721 North St

Massachusetts Medical Society

LOCAL DIRECTORY

THE FELLOWS LISTED ACCORDING TO THEIR SITUATION
IN THE VARIOUS CITIES, TOWNS AND POST
OFFICES OF THE STATE

JANUARY 1, 1915

LOCAL DIRECTORY

THE FELLOWS LISTED ACCORDING TO THEIR SITUATION IN THE VARIOUS CITIES, TOWNS
AND POST OFFICES OF THE COMMONWEALTH.

NOTE.—Names of District Societies are printed in lower-case Roman. Names of cities are printed in capitals. Names of towns are printed in small capitals. Names of villages and post offices are printed in lower-case Italics.

ABINGTON (Plymouth).
(See also: North Abington.)
Hutelinson, W. P.

ACTON (Middlesex North).
(See also: West Acton).

ACUSHNET (Bristol North).

ADAMS (Berkshire).
Boom, A. K.
Crowley, J. F.
Holmes, H. B.
Pascoe, W. W.

AGAWAM (Hampden).
(See also: Feeding Hills.)

ALFORD (Berkshire).

Allerton (HULL).
Sturgis, W. H. W.

Allston (Brighton) (BOSTON).
Casey, J. F.
Dadmun, E. J.
Dow, E. S.
Giddings, H. G.
Haslam, F. A.
Kimpton, A. R.
Lovell, M. E.
McKeen, S. F.
O'Brien, C. R.
Riley, C. A.
Rogers, M. H.
Tilton, E. E.
Turnbull, J. A.
Wallace, H. L.
Wood, B. E.
Wormelle, C. B.

AMESBURY (Essex North).
Adams, J. Q.
†Douglass, J. A.
Leslie, H. G.
Mudge, O. P.
Mullen, P. J.
Murphy, D. D.
Rand, J. W.
Robinson, H. P.
Roche, T. N.
Savignac, A. N.

AMHERST (Hampshire).
(See also: Cushman, North Amherst.)
Barrows, Sterling.
Bowen, J. F.
Haskell, N. C.
Rawson, G. W.
Rockwell, H. G.

ANNISQUAM (Gloucester).
Shields, E. E.

ANDOVER (Essex North).
Abbot, C. E.
Clark, J. D.
Conroy, E. C.
Fuller, J. R.
Torrey, J. P.
Walker, W. D.

ARLINGTON (Middlesex South).
(See also: Arlington Heights.)

Atwood, C. F.
Buckley, D. J.
Dennett, C. A.
Hanson, W. T.
Keegan, C. A.
Lawley, B. I.
Pratt, Ezekiel.
Sanger, G. E.
Stickney, E. P.
Tolman, Julia
Webb, H. R.
Young, R. D.

Arlington Heights (ARLINGTON).
Farrington, L. M.
Knowlton, W. M.
Ring, A. H.

ASHBURNHAM (Worcester North).
Fosgate, E. G.
Warren, H. E.

ASHBY (Worcester North).
Pope, F. F.

ASHFIELD (Franklin).
Urquhart, J. E.

ASHLAND (Middlesex South).
Morse, R. S.

ATHOL (Worcester North).
Cuddy, J. F.
Holmes, L. D.
Perry, G. L.

Atlantic (QUINCY).
Bartlett, F. A.
Bruce, D. A.
Drew, M. E.

ATTLEBOROUGH (Bristol North).
Battershall, J. W.
Battershall, M. H. W.
Clarke, J. W.
Conro, A. C.
Hewitt, W. O.
Holden, C. S.
Kent, R. P.
Mackie, L. V. G.
Milot, W. F.
Murphy, F. V.
Reese, J. A.
Rounseville, W. E.

AUBURN (Worcester).

Auburndale (NEWTON).
Godfrey, F. W.
Haskell, H. H.
Hutchinson, C. P.
Keever, H. F.
Porter, F. E.

AVON (Plymouth).
Elliott, R. A.
Linfield, E. P.

AYER (Worcester North).
Bulkeley, F. S.
Hopkins, B. H.
Priest, H. B.

Baldwinsville (TEMPLETON).
Libby, M. A.
Page, H. W.
Robie, W. F.
Warren, L. M.

BARNSTABLE (Barnstable).
(See also: Cotuit, Hyannis, Mars-
ton's Mills, Osterville.)
Millikin, C. W.

BARRE (Worcester).
Bates, W. S.
Brown, G. A.

BECKET (Berkshire).
Dearborn, H. H.

BEDFORD (Middlesex North).
Hamblen, E. E.
Whiton, R. K.

BELCHERTOWN (Hampshire).
Eliot, H. W.

BELLINGHAM (Norfolk).

BELMONT (Middlesex South).
(See also: Waverley.)
Dow, J. A.
†Underwood, G. L.

BERLIN (Worcester).

BERNARDSTON (Franklin).
Croft, B. P.
Pierce, W. H.

BEVERLY (Essex South).
Cowles, F. A.
Dexter, Franklin
Haddock, C. W.
Hayes, W. F.
Hill, G. J.
Johnson, P. P.
Sears, H. E.
Shatswell, J. A.
Shea, J. J.
Stanley, F. G.
Stickney, G. A.
Stone, R. E.
Swan, L. C.
†Swasey, O. F.
†Torrey, S. W.
Voss, J. W.

BILLERICA (Middlesex North).

Buck, M. A.
Stearns, A. W.

Blackinton (WILLIAMSTOWN).

Galvin, William

BLACKSTONE (Worcester).

Roche, T. F.

BLANDFORD (Hampden).**BOLTON (Worcester).****Bondsville (PALMER).**

Smith, W. B. T.

BOSTON (Suffolk).

(See also: East Boston, South Boston, Allston, Brighton, Charlestown, Dorchester, Forest Hills, Hyde Park, Jamaica Plain, Mattapan, Roslindale, Roxbury, West Roxbury.)

Achorn, R. C.
Adams, J. D.
Allard, C. E.
Allen, Freeman
Allen, G. E.
Allen, G. W.
Amadon, A. F.
Amadon, A. M.
Ames, J. L.
Andrews, A. J.
Andrews, H. V.
Appleton, William
Arkin, Louis
Arnold, H. D.
Austin, A. E.
Ayer, J. B.
Ayer, S. H.
Badger, G. S. C.
Bailey, W. C.
Baker, D. V.
Baker, H. W.
Balboni, G. M.
Balch, F. G.
Baldwin, H. C.
Barney, J. D.
Barney, W. O.
Barone, Joseph
Barrell, C. S.
Barrier, E. A.
Barstow, A. T.
Bartol, J. W.
Bean, C. P.
Beebe, T. C.
Berry, C. F.
Bigelow, W. S.
Binney, Horace
Bisbee, E. S.
Blake, C. J.
Blake, Gerald
Blake, J. B.
Blake, J. G.
†Blodgett, A. N.
Blodgett, J. H.
†Boardman, W. E.
Boardman, W. P.
Boardman, W. S.
Bonelli, R. P.
Boothby, W. M.
Bossidy, J. C.
Bottomley, J. T.
Boutwell, H. K.
Bowditch, H. I.
Bowditch, V. Y.
Bowen, J. T.
Bowman, F. R.
Brackett, E. G.
Bradford, E. H.

BOSTON (continued).

Brady, J. F.
Brant, Austin
Bremer, J. L.
Brewster, G. W. W.
Briggs, F. M.
Briggs, L. V.
Brigham, F. G.
Brindisi, Rocco
Broderick, T. F.
Brooks, W. A.
Brough, D. D.
†Brown, F. H.
Brown, L. T.
Brown, Percy
Brown, W. J.
Browne, W. E.
Bryant, A. G.
Buck, H. M.
Buckingham, E. M.
Bullard, W. N.
Burlingham, L. H.
Burnett, F. L.
Burnham, E. A.
Burns, F. S.
Burrage, W. L.
Burt, F. L.
Butler, C. S.
Cabot, Hugh
Cabot, R. C.
Call, E. L.
Carley, M. E.
Castleman, Philip
Chadbourne, A. P.
Chamberlain, M. L.
Chandler, T. E.
Chase, H. M.
Chase, Horace
Chase, W. G.
Cheever, David
†Cheever, D. W.
Chenery, W. E.
Christian, H. A.
Chute, A. L.
Clap, E. W.
Clark, G. O.
Clark, J. P.
Clark-MacLeod, Emily
Cliff, L. A.
Clymer, George
Cobb, Farrar
Cobb, F. C.
Cobb, G. N.
Cochrane, R. C.
Codman, E. A.
Coffin, R. A.
Cogan, J. A.
Colburn, H. H.
Conant, W. M.
Coriat, I. H.
Coté, H. J.
Cotton, F. J.
Coues, W. P.
Councilman, W. T.
Coursey, F. R.
Courtney, J. W.
Cowles, W. L.
Cox, A. C.
Cox, O. F.
Crabtree, E. G.
Cragin, G. A.
Crandon, L. R. G.
Crane, Clarence
Crawford, F. X.
Crockett, E. A.
Crosbie, A. H.
Culbertson, E. V. P. B.
Cummin, J. W.
Cummins, L. J.
Cunningham, A. R.
Cunningham, J. H., Jr.

BOSTON (continued).

Cushing, H. W.
Cutler, E. G.
Cutler, G. D.
Daly, W. J.
Daniels, E. A.
Davenport, F. H.
Davis, F. A.
Davis, Lincoln
Davis, M. F.
Dawson, R. P.
Day, H. F.
DeBlois, T. A.
Delano, Samuel
Denig, B. A.
Denning, E. J.
DeNormandie, R. L.
Derby, G. S.
Dewing, L. A.
Dixon, Arthur
Dixon, L. S.
Dixon, R. B.
Dodd, W. J.
Dodge, A. M.
Dodge, W. W.
Donlan, C. E.
Donoghue, F. D.
Dorcey, J. E.
Dowling, J. J.
Drury, D. W.
Duckering, F. W.
Dunn, C. H.
Dunn, Wm. Aloysius
Dunn, Wm. Ambrose
Dwight, E. W.
Eames, G. F.
Earle, G. H.
Easton, E. T.
Edwards, W. L.
Ehrenfried, Albert
Ehrlich, Henry
Elliot, J. W.
Elliott, R. D.
Emerson, N. W.
Emerson, W. R. P.
English, M. J.
Erb, T. C.
Eustis, R. S.
Evans, Albert
Everett, E. E.
Fabyan, Marshal
Fair, R. P.
Farlow, J. W.
Faulkner, W. E.
Felch, C. I.
Felch, G. A.
Felch, L. P.
†Fernald, C. A.
Finkelstein, Harry
Fischbein, Louis
Fitz, G. W.
Fitz, Reginald
Fitzgerald, J. B.
Flagg, Elisha
Floyd, Cleaveland
Foley, T. B.
Fraser, A. McK.
Friedman, Benjamin
Friedman, Nathan
Frothingham, Channing, Jr.
Frye, E. B.
Gallison, J. M.
Galloupe, C. W.
Gannett, W. W.
Garland, G. M.
Gay, H. S.
Gay, W. F.
Germain, H. H.
Ghoreyeb, A. A. W.
Gilpatrick, R. H.
Goddu, L. A. O.

BOSTON (continued).

Golden, Lazarus
 Goldthwait, J. E.
 †Goldthwait, S. V.
 Goodale, J. L.
 Goodeall, H. W.
 Grainger, E. J.
 Granger, F. B.
 Grant, W. H.
 Graves, W. P.
 Greeley, H. P.
 Green, C. M.
 †Green, J. O.
 Green, R. M.
 †Green, S. A.
 Greene, D. C., Jr.
 Greene, E. M.
 Greenough, R. B.
 Haines, Ignatius
 Haley, W. T.
 Hall, G. W.
 Hall, W. D.
 Hamilton, A. J. A.
 Hamilton, A. L.
 Hanscom, R. F.
 Harding, G. F.
 Hare, C. H.
 Harmer, T. W.
 Harrington, T. F.
 Harrison, C. W.
 Harrison, Henry
 Hartung, H. H.
 Hartwell, H. F.
 Hartwell, J. B.
 Haskins, F. E.
 Hawes, J. B., 2nd
 Hawkins, Henry
 Hebbard, E. C.
 Heffernan, D. A.
 Henderson, F. F.
 Hepburn, J. J.
 †Hersey, F. C.
 Hewes, H. F.
 Heydemann, Martin
 Higgins, F. A.
 Hill, G. S.
 Hill, L. W.
 Hill, T. C.
 Hipkiss, George
 Hitchcock, Edward
 Hogner, R. P. F.
 Holmes, E. M.
 Holt, F. H.
 Houghton, N. H.
 Howard, A. A.
 Howard, A. G.
 Howe, O. T.
 Howe, W. C.
 Howland, J. B.
 Hubbard, J. C.
 Hughes, L. A. C.
 Hunt, D. L.
 Huntington, J. L.
 Hurley, J. J.
 Hurwitz, A. J.
 Hutchins, H. T.
 Irving, F. C.
 Jack, E. E.
 Jack, F. L.
 Jackson, D. L.
 Jackson, Henry
 Jackson, J. M.
 Janes, A. P.
 Jantzen, F. T.
 †Jeffries, B. J.
 Jelly, A. C.
 Johnson, F. M.
 Johnson, F. W.
 Jones, D. F.
 Jones, M. S.
 Jordan, E. M.

BOSTON (continued).

Joslin, E. P.
 Katsinos, G. M.
 Keenan, G. F.
 Kellogg, E. B.
 Kellogg, F. L.
 Kellogg, F. S.
 Kennedy, A. G.
 Kepler, C. O.
 Kerr, I. D.
 Kilburn, H. W.
 King, F. A.
 Kissock, R. J.
 Klein, Isaac
 Knapp, P. C.
 Ladd, Maynard
 Ladd, W. E.
 Lahey, F. H.
 Larrabee, R. C.
 Lawrence, N. L.
 †Lawrence, R. M.
 Leavitt, P. H.
 Lee, H. J.
 Leen, T. F.
 Legg, A. T.
 Leland, G. A.
 Leland, G. A., Jr.
 L'Esperance, O. R. T.
 Levins, N. N.
 Lewis, F. E.
 Liebman, William
 Lindquist, C. A.
 †Lithgow, R. A. D.
 Little, J. M., Jr.
 Lloyd, H. D.
 Locke, E. A.
 Loder, H. B.
 Lord, F. T.
 Lothrop, H. A.
 Lothrop, O. A.
 Lovett, R. W.
 Lowell, F. L.
 Luce, LeR. A.
 Luftig, Jacob
 Lund, F. B.
 Lyman, Henry
 MacAusland, A. R.
 MacAusland, W. R.
 McClintock, F. B.
 McCollom, J. H.
 McCurdy, T. E. A.
 McDonald, S. J.
 McGann, P. P.
 MacKnight, W. F.
 McLaughlin, H. J.
 MacLennan, A. D.
 McWeeny, B. M.
 Madden, W. D.
 Magrath, G. B.
 Mahoney, D. F.
 Marble, H. C.
 Marcy, H. O.
 Marshall, H. W.
 Martin, J. F.
 Martin, Miles
 Mason, N. R.
 Mead, L. G.
 Means, J. H.
 Medalla, L. S.
 Meek-Rabe, E. R.
 Merrill, A. S.
 Metcalf, Richard
 Miller, G. F.
 Miller, R. H.
 Minot, G. R.
 Minot, J. J.
 Mixter, C. G.
 Mixter, S. J.
 Mixter, W. J.
 Monks, G. H.
 Moore, G. C.

BOSTON (continued).

Moore, J. H.
 Morgan, C. R.
 Morgan, John
 Morong, A. B.
 Morrison, A. B.
 Morse, C. F.
 Morse, G. W.
 Morse, H. L.
 Morse, J. L.
 Mosher, H. P.
 Murphy, F. C.
 Murray, B. F.
 Myers, S. W.
 Nagle, E. W.
 Newell, F. S.
 †Nichols, A. H.
 Nichols, E. H.
 Nishan, H. M.
 Nolen, W. F.
 Noyes, M. L.
 Nute, A. J.
 O'Brien, E. J.
 Oliver, E. L.
 †Oliver, H. K.
 O'Neil, R. F.
 Osgood, R. B.
 O'Sullivan, Anna
 Otis, E. O.
 Otis, W. J.
 Ott, G. J.
 Overlander, C. L.
 Packard, A. E.
 Packard, Horace
 Page, A. K.
 Page, C. G.
 Paine, A. K.
 Palfrey, F. W.
 Palmer, Ezra
 Palmer, S. E.
 Palmer, W. W.
 Parker, W. S.
 Paul, L. G.
 Paul, W. E.
 Payne, J. H.
 Pearl, S. M.
 Pease, E. A.
 Pemberton, F. A.
 Penhallow, D. P.
 Percy, K. G.
 Perry, H. J.
 Phelps, J. S.
 Phipps, Cadis
 Pierson, P. H.
 Pike, W. C.
 Piper, Frank
 Place, E. H.
 Pomeroy, H. S.
 Pond, B. W.
 Pope, E. F.
 Porter, C. A.
 Post, Abner
 Powers, G. H.
 Praino, Gaetano
 Preble, W. E.
 Prens, Joseph
 Prince, Morton
 Putnam, J. J.
 Quackenboss, Alexander
 Quinby, W. C.
 Reardon, T. J.
 Reggio, A. W.
 Reynolds, Edward
 Rice, W. H.
 Richards, G. G.
 †Richards, G. E.
 Richardson, A. G.
 Richardson, E. P.
 Richardson, F. L.
 Richardson, Oscar
 Richardson, W. L.

BOSTON (continued).

Riley, Augustus
 Riley, E. A.
 Risley, E. H.
 Robbins, Chandler
 Robbins, E. D.
 Robbins, W. B.
 Robey, W. H., Jr.
 Rogers, A. E.
 Rolfe, W. A.
 Rosen, D. W.
 Rothblatt, H. L.
 †Rowe, G. H. M.
 Rushmore, Stephen
 Sabine, J. D. K.
 Sadler, R. A.
 Sargent, G. A.
 Saunders, E. L.
 Saville, S. C.
 Sawyer, E. K.
 Seannell, D. D.
 Scudder, C. L.
 Sears, G. G.
 Sears, H. F.
 Seymour, Malcolm
 Shattuck, F. C.
 Shattuck, G. B.
 Shattuck, G. C.
 Shaw, Albert J.
 Shaw, Arthur J.
 Shea, T. B.
 Sheldon, R. F.
 Simmons, C. C.
 †Skinner, E. M.
 Smith, Conrad
 Smith, C. M.
 Smith, E. W.
 Smith, G. C.
 Smith, G. G.
 Smith, H. H.
 Smith, M. A.
 Smith, P. M.
 Smith, R. M.
 Smith, W. D.
 Smith, W. H.
 Sobotky, Irving
 Soutter, Robert
 Spooner, L. H.
 Sprague, F. P.
 Sprague, R. B.
 Stacey, C. F.
 Standish, Myles
 Stedman, George
 Stevens, W. S.
 Stone, A. K.
 Stone, C. S.
 Stone, G. H.
 Stone, J. S.
 Storer, Malcolm
 Streeter, C. E.
 Strong, R. P.
 Stuart, J. H.
 Sullivan, C. B.
 Sumner, P. S.
 Supple, E. A.
 Swain, H. T.
 Swift, E. H.
 Swift, J. B.
 Swift, W. B.
 Talbot, F. B.
 Taylor, E. W.
 Temple, W. F.
 Temple, W. F., Jr.
 Ten Broeck, Carl
 Tenney, Benjamin
 Thomas, J. J.
 Thompson, C. O.
 Thompson, P. H.
 Thorndike, Augustus
 Thorndike, Paul
 Thorndike, T. W.

BOSTON (continued).

Thornton, J. B.
 Tingley, L. P.
 Titus, R. S.
 Tobey, G. L., Jr.
 Torbert, J. R.
 Towle, H. P.
 Townsend, C. W.
 Traves, W. H., Jr.
 †Trull, W. B.
 Twombly, E. L.
 Tyrode, M. P. O. V.
 Verhoeff, F. H.
 Vickery, H. F.
 Vietor, A. C.
 Vincent, Beth
 Vose, R. H.
 Wadsworth, R. G.
 Walker, C. B.
 Walker, D. H.
 Walker, I. J.
 Walsh, E. F.
 Walton, G. L.
 Warren, John
 Warren, J. Collins
 Washburn, F. A.
 Washburn, G. H.
 Waterman, G. H.
 Watson, F. S.
 Watson, J. W.
 Webster, G. A.
 Wells, C. E.
 Wells, Frank
 Wentworth, A. H.
 Wentworth, M. H.
 Whipple, F. H.
 White, C. J.
 White, F. W.
 †White, J. C.
 Whitney, C. M.
 Whitney, W. F.
 Whittemore, Wyman
 Wilinsky, C. F.
 Williams, F. H.
 Williams, Harold
 Williams, H. C.
 Williams, Hugh
 Williams, J. T.
 Wilson, E. W.
 Winslow, F. B.
 Withington, C. F.
 Wolbach, S. B.
 Wolcott, Grace
 Wood, N. K.
 Woodbury, W. R.
 Wright, J. H.
 Wylie-Cushman, E. R.
 Wyman, E. T.
 Young, E. L., Jr.
 Young, E. B.
 Young, E. W.

BOURNE (Barnstable).

(See also: Cataumet, Sagamore.)

BOXBOROUGH (Middlesex North).**BOXFORD (Essex North).****BOYLSTON (Worcester).**

Balcom, K. I.

Bradford (HAVERHILL).

Anthony, F. W.
 Atwood, G. M.
 Brainerd, W. S.
 George, L. H.
 Littlefield, M. C.
 O'Toole, J. L.

BRAINTREE (Norfolk South).

(See also: South Braintree.)

Cook, J. W.
 Dearing, H. L.
 Gile, F. H., Jr.
 Gould, C. H.

BREWSTER (Barnstable).

Crocker, L. A.

BRIDGEWATER (Plymouth).

(See also: State Farm.)

Carr, A. W.
 †Pratt, Calvin
 Warren, F. L.
 Whelan, E. V.

Brighton (Middlesex South.)

(BOSTON).

(See also: Allston.)

Buckley, W. S.
 Crosby, W. H.
 Gwinnell, A. W.
 Rice, F. W.
 Rowen, H. S.
 Tinkham, O. G.

BRIMFIELD (Hampden.)

Sawin, R. V.

BROCKTON (Plymouth).

(See also: Campello.)

Alfred, James
 Bacon, J. E.
 Barrett, M. F.
 Beals, A. L.
 Boucher, G. H.
 Brady, J. E.
 Brides, A. E.
 Buckley, G. A.
 Burnett, F. H.
 Chase, H. A.
 Clark, E. W.
 Cloudman, H. R.
 Condrick, J. J.
 Dacy, C. J.
 Drohan, J. H.
 Ducey, W. D.
 Fullerton, W. W.
 Goddard, H. E.
 Goddard, S. W.
 Granstein, C. I.
 Gruver, S. J.
 Keith, W. C.
 Lawrence, J. H.
 Lupien, H. J.
 McCann, C. D.
 McCarthy, T. H.
 McNamara, J. J.
 Mara, J. L.
 Miles, C. G.
 Millet, C. S.
 Moore, G. A.
 Murdock, F. W.
 Noyes, J. R.
 O'Brien, F. W.
 Packard, L. B.
 Paine, A. E.
 Pettey, J. A.
 Ripley, F. J.
 †Robinson, L. M.
 Safford, W. P.
 Shaw, J. P.
 Simmons, F. A.
 Smith, A. C.
 Sullivan, A. J.
 Tuholski, D. B.

BROOKFIELD (Worcester).

(See also: East Brookfield.)

Newhall, L. T.
 Sherman, M. H.

BROOKLINE (Norfolk).

(See also: Waban.)

Adams, Z. B.
Bail, J. W.
Barnes, H. A.
Blakely, D. N.
Blanchard, B. S.
Boos, W. F.
Borden, C. R. C.
Bowditch, Harold
Bowker, E. M.
Brainerd, J. B.
Brigham, E. H.
Bufford, J. H.
Bulfinch, G. G.
Butler, P. F.
†Call, Norman
Casselberry, C. M.
Channing, Walter
Chase, H. L.
Cleaves, F. H.
Connelly, J. E.
Coolidge, Algernon
Cooper, Almon
Cornwall, A. P.
Cushing, A. A.
Cushing, Harvey
Cutts, H. M.
Dalton, C. H.
Dana, H. W.
Deal, E. E.
Denny, F. P.
Dewis, J. W.
Dreyfus, E. W.
Ellis, W. R.
Emerson, F. P.
Fairbanks, A. W.
Fallon, J. F.
Fay, W. E.
Francis, C. S.
Francis, G. H.
Gilbert, L. W.
Gilman, C. S.
Good, F. L.
Graham, Douglas
Gregg, Donald
Hastings, R. W.
Hatch, R. A.
Hayes, F. L.
Hills, W. B.
Hinckley, J. W.
Hixon, E. C.
Holmes, G. W.
Houghton, S. A.
Inglis, H. J.
Johnson, M. W. L.
Jones, Everett
Jones, F. E.
Jones, J. C.
Kaan, G. W.
Kennealy, J. H.
Kickham, C. J.
Kingman, R. A.
Kittredge, Joseph
Lawrence, C. H., Jr.
Levy, F. J.
Litchfield, W. H.
Lyle, E. B.
MacCormick, J. A.
Mackie, W. C.
McLaughlin, H. V.
McMahon, F. J.
Mallory, F. B.
Mann, W. O.
Metcalf, J. T.
Parker, H. S.
Pearce, A. C.
Phanenf, L. E.
Powers, H. H.
Pratt, J. H.
†Purvis, C. B.

BROOKLINE (continued).

Rogers, E. A.
Rosenau, M. J.
Sabine, G. K.
Sanborn, G. P.
Shanahan, T. J.
Sibley, B. E.
Smyth, D. C.
Smyth, P. S.
Spalding, F. M.
Speard, L. M.
Stedman, H. R.
Taylor, J. G.
Toohey, T. V.
Torney, G. H.
†Webber, S. G.
Whittier, F. F.
Wilcox, De W. G.
Williams, A. G.
Williams, F. P.
Woods, J. H.
Young, J. F.

Bryantville (PEMBROKE).

Charles, O. W.

BUCKLAND (Franklin).

BURLINGTON (Middlesex East).

CAMBRIDGE (Middlesex South).

(See also: East Cambridge.)

Adams, C. W.
Andrews, R. E.
August, Albert
Bacon, N. S.
Bailey, M. H.
Barnes, F. J.
Boyle, J. J.
Bresnihan, F. S.
Brousseau, W. G.
Brown, C. P.
Bryant, L. L.
Bucholz, C. H.
Buehler, G. V. B.
Burke, W. H., Jr.
Cady, F. B. M.
Cahill, C. S.
Cahill, T. J.
Cannon, W. B.
Clarke, Genevieve
Clarke, I. L.
Cleary, James
Cogswell, G. P.
Crocker, J. M.
Cronin, H. J.
Cunningham, J. H.
Cunningham, T. E.
Cunningham, T. E., Jr.
Currie, J. Z.
Darling, E. A.
Davis, B. D.
Dearborn, G. V. N.
Derby, W. P.
Donahue, W. F.
Dow, D. C.
Downing, A. F.
†Driver, S. W.
Dudley, A. W.
Dunham, A. F.
Dwyer, J. E.
Dwyer, J. E., Jr.
Dwyer, W. J.
†Ela, Walter
Ely, T. W.
Feeley, C. P.
Feeley, W. C.
Finnigan, P. J.
Fleet, W. E.
Fleming, P. J.
Foster, C. C.
Funnell, W. G.

CAMBRIDGE (continued).

Gardner, H. M.
George, A. W.
Goodridge, F. J.
Hanson, W. C.
Hapgood, L. S.
Hayes, W. L.
Heaton, T. H.
Hinton, W. A.
Honeij, J. A.
Hutchinson, C. M.
Jouett, F. R.
Kelleher, P. F.
Kennelly, J. G.
King, M. L.
LaMarche, W. J.
Lancaster, S. R.
Langnecker, H. L.
Leahy, T. J.
Lee, R. I.
Lockhart, J. S.
MacKillop, Daniel
Mackechnie, A. N.
McAdams, P. S.
McCarthy, E. A.
McGirr, F. F.
McIntire, G. F.
McIntire, H. B.
McKenzie, J. R.
Murphy, J. J.
Myles, L. T.
Nason, O. C. B.
Nelligan, J. P.
Nelson, C. A.
Noonan, W. A.
Norris, A. P.
Norton, G. E.
O'Rourke, E. J.
Page, G. T.
Palmer, G. M.
Partridge, T. J.
Peabody, F. W.
Peirce, B. H.
Potter, A. C.
Preble, Wallace
Putnam, W. A.
Robertson, J. W.
Rose, W. M.
Seavy, H. L.
Sennott, J. R.
Sever, J. W.
Shannon, N. V.
Smith, J. J.
Somers, J. E.
Southard, E. E.
Southard, M. A.
Stevens, E. H.
Stevens, H. P.
Sullivan, F. A.
Swan, W. D.
Taylor, F. W.
Thomas, C. H.
Thomas, W. K. S.
Trainor, J. A.
Tuttle, A. H.
Verde, Luigi
Walcott, H. P.
†Walker, A. C.
Walsh, C. J.
Wetherbee, Roswell
White, G. A.
Whittemore, W. S.
Whoriskey, J. J.
Williams, E. R.

Campello (BROCKTON).

Averill, J. H.
Caswell, W. E.
Frost, E. W.
Holmberg, C. L. M.
King, N. C.

CANTON (Norfolk).

Fish, J. E.
Luce, D. S.
Tenney, W. N.

CARLISLE (Middlesex North).**CARVER (Plymouth).****Cataumet (BOURNE).**

Cowles, W. W.

CHARLEMONT (Franklin).**Charlestown (Middlesex South).
(BOSTON).**

Breslin, J. G.
Brickley, W. J.
†Dearborn, J. G.
Duff, John
Fitzpatrick, J. J.
Flagg, H. H.
Grandison, W. G.
Hammond, W. P.
Hurley, D. J.
Lyons, J. B.
Magurn, F. T. L.
McDermott, J. E.
MacDonald, W. J.
McNally, W. J.
Morris, M. A.
O'Brien, J. F.
Patterson, W. F.
Phummer, E. M.
Silva, F. P.
Sprague, R. W.
Wood, N. M.

CHARLTON (Worcester).**CHATHAM (Barnstable).**

†Gifford, B. D.

CHELMSFORD (Middlesex North)

(See also: North Chelmsford.)
Howard, Amasa
Scorboria, A. G.

CHELSEA (Suffolk).

†Chipman, W. R.
Cutler, C. N.
Fenwick, G. B.
Guild, E. F.
Kenney, J. E.
Putnam, J. M.
Raddin, F. S.

CHESHIRE (Berkshire).**CHESTER (Hampden).**

Lanpher, H. A.

CHESTERFIELD (Hampshire).

Hudnut, P. A.

Chestnut Hill (NEWTON).

Baldwin, H. T.
Briggs, E. C.
Curtis, F. G.
Gay, G. W.

CHICOPEE (Hampden).

(See also: Chicopee Falls, Williamansett.)
Gallagher, J. H. C.

Chicopee Falls (CHICOPEE).

Beauchamp, J. O.
Cooley, A. L.
†Gibbs, L. J.
Mannix, L. E.
Powers, J. T. H.
Shea, M. I.

CHILMARK (Bristol South).**CLARKSHURG (Berkshire).****Cliftondale (SAUGUS).**

Danforth, H. A.
Penny, H. T.
Penny, M. M.
Perkins, T. T.

CLINTON (Worcester).

Abbott, C. R.
Bowers, W. P.
Chase, G. L.
French, C. L.
Goodwin, J. J.
Grady, P. A. S.
Kirby, J. R.
MacKay, E. H.
Monahan, J. A.
Morse, I. M.
Tobey, G. L.

Cochituate (FRAMINGHAM).

Sparks, E. E.

COHASSET (Norfolk South).

Bryant, John
Hinchliffe, Frederick
Howe, O. H.
Osgood, George

COLRAIN (Franklin).

Cram, J. W.
Mather, J. A.

CONCORD (Middlesex South).

(See also: Concord Junction.)
Cheney, F. E.
Emerson, E. W.
Titcomb, G. E.
Walcott, H. J.

Concord Junction (CONCORD).

Fernald, G. G.
Pickard, I. L.

CONWAY (Franklin).**Cotuit (Barnstable).**

Haskins, S. F.

CUMMINGTON (Hampshire).

†Stutson, W. P.
Swanson, A. F.

Cushman (AMHERST).

Fuller, A. H.

DALTON (Berkshire).

MacKay, G. F.
Schofield, W. W.
Sullivan, P. J.

DANA (Worcester).

(See also: North Dana.)

DANVERS (Essex South).

(See also: Hathorne.)
Baldwin, F. W.
Buck, C. L.
Deering, C. F.
Marsh, A. P.
Sparhawk, C. W.

DARTMOUTH (Bristol South).

(See also: South Dartmouth.)

DEDHAM (Norfolk).

(See also: East Dedham.)
Batchelder, H. G.
Finn, E. W.
Hodgdon, A. H.
Pratt, J. W.
Worthington, A. M.
Young, W. H.

DEERFIELD (Franklin).

(See also: South Deerfield.)

Davis, P. G.
Thorn, E. C.

DENNIS (Barnstable).

(See also: Dennisport, East and West Dennis.)

Dennisport (DENNIS).

Ginn, D. R.

DIGHTON (Bristol North).

Baker, H. B.

Dorchester (Norfolk). (BOSTON).

(See also: Mattapan.)

Abbe, F. R.
Adams, H. W.
Bailey, F. J.
Ballou, A. R.
Barker, W. W.
Batchelder, W. B.
Bliss, G. D.
Bogan, P. L.
Brayton, R. W.
Brearton, E. J.
Brown, F. B.
Butler, J. E.
Carroll, C. C.
Carruth, S. S.
Cavanaugh, C. R.
Coffin, A. B.
Costello, J. H.
Crittenden, S. W.
Croke, L. W.
Crossman, F. A.
Crowell, Samuel
Curran, S. F.
Davis, W. H.
Davison, A. H.
Devenny, J. H.
Dewey, C. G.
Dobson, W. M.
Draper, A. L.
Drumme, N. D.
Duckering, W. W.
Eldridge, D. G.
Emery, W. C.
Evans, M. H. A.
Fennessey, J. F.
Freedman, L. M.
Frost, H. P.
Giblin, F. J.
†Gilman, E. A.
Gookin, E. R.
Graves, B. A.
Hallisey, J. E.
Hammond, W. J.
Hardwick, E. V.
Harrington, D. J.
Harrington, H. L.
Hastings, J. M.
Hemeon, F. C.
Johnston, William
Kelley, J. H. H.
Kelly, J. M.
Kendrick, J. T.
Kent, Bradford
Kingsley, P. J.
Lane, J. W.
MacCallum, W. P.
Macauley, J. A.
Macdonald, A. A.
McEvoy, G. A.
McIntire, David
McQuade, L. S.
Mains, C. F.
Marr, M. L.
Marr, M. W.
Martin, H. W.

Dorchester (continued).

Mendelsohn, Louis
 Merrick, R. M.
 Miller, C. H.
 Morrison, Hyman
 Murray, P. J.
 Myrick, H. G.
 Mysel, Philip
 Noble, M. G.
 Norton, H. R.
 Nute, Marion
 O'Brien, J. J.
 O'Hare, J. P.
 Parker, W. H.
 Parsons, F. S.
 Parvey, Benjamin
 Peirce, G. A.
 Phillips, W. F.
 Quest, J. F.
 Reilly, J. A.
 Reynolds, H. V.
 Roberts, L. A.
 Rogers, O. F.
 Rogers, O. F., Jr.
 Rood, L. C.
 Scales, R. B.
 Scanlan, M. T.
 Scanlan, T. J.
 Schmidt, R. D.
 Shapira, V. I.
 Sheppard, P. A. E.
 Sherburne, A. E.
 Sleeper, F. W.
 Stack, J. J.
 Starbird, E. P.
 †Stevens, G. B.
 Stone, H. E.
 Sturnick, Max
 Sullivan, J. J.
 Sullivan, J. T.
 Thurber, M. T.
 Towle, H. C.
 Treanor, J. P.
 Twitchell, E. T.
 Walton, W. J.
 Watson, F. G.
 Watts, H. F. R.
 White, R. M.
 Williams, Joseph
 Wiseman, J. I.
 Wylie, E. C.

DOUGLAS (Worcester).

(See also: East Douglas.)

DOVER (Norfolk).

Emmons, A. B., 2nd.
 Porter, W. T.

DRACUT (Middlesex North).

(See also: Dracut Center.)

Dracut Center (DRACUT).

†Flint, O. A.

*DUDLEY (Worcester).**DUNSTABLE (Middlesex North).**DUXBURY (Plymouth).*

Durgin, S. H. (Millbrook P. O.)
 Noyes, N. K.
 Spalding, Roger

East Boston (BOSTON).

Blanco, J. A.
 Bonney, Robert
 Bowen, E. E.
 Bragdon, H. E.
 Campbell, B. F.
 Ensworth, W. H.

East Boston (continued).

Grainger, W. H.
 Halsall, M. E.
 Hartnett, E. D.
 Houghton, R. H.
 Hurley, D. B.
 Morrison, W. A.
 Morrison, W. R.
 Myers, Solomon
 O'Keefe, M. W.
 Parks, J. W.
 Sisson, Mitchell
 Tallman, A. L.
 Tilton, F. H.

East Brookfield (BROOKFIELD).

Hayward, W. F.

East Cambridge (CAMBRIDGE).

Clancy, W. H.
 Fair, J. F.

East Dedham (DEDHAM).

Drew, F. P.

East Dennis (DENNIS).

Hart, H. B.

East Douglas (DOUGLAS).

†Holbrook, S. P.

East Gardner (GARDNER).

Thompson, C. E.

East Gloucester (GLOUCESTER).

†Eveleth, E. S.

*EASTHAM (Barnstable).**EASTHAMPTON (Hampshire).*

Burke, J. J.
 Cobb, C. T.
 Cobb, O. W.
 Pond, L. B.
 Williams, E. D.
 Winslow, E. S.

East Longmeadow (LONGMEADOW).

Curtis, H. F.

East Milton (MILTON).

Rowe, C. A.

EASTON (Bristol North).

(See also: North Easton.)

East Taunton (TAUNTON).

Adams, W. C.

East Walpole (WALPOLE).

Coon, G. B.

East Weymouth (WEYMOUTH).

Doucett, F. L.
 Fraser, J. C.
 Libby, J. H.

EDGARTOWN (Bristol South).

Worth, E. P.

*EGREMONT (Berkshire).**ENFIELD (Hampshire).*

Segur, W. B.

ERVING (Franklin).

Johnson, F. E.

ESSEX (Essex South).

Steeves, E. C.

EVERETT (Middlesex South).

Bruce, J. A.
 Conroy, P. J.
 Cornish, S. W.
 Dickinson, G. W.
 Downing, C. H.
 Harrington, C. W.
 Jackson, A. A.
 Keaney, H. J.
 McAllester, R. W.
 McQuaid, T. B.
 Morris, R. H.
 Ordway, C. A.
 Rogers, F. A.
 Warren, A. H.
 Whitehill, G. E.
 Young, E. W.

FAIRHAVEN (Bristol South).

Horne, L. W.
 Howes, F. M.

FALL RIVER (Bristol South).

Abbe, A. J.
 Almy, Thomas
 Barré, J. A.
 Blanchette, W. H.
 Blood, G. W.
 †Bowen, S. W.
 Bright, J. C.
 Buck, A. W.
 Butler, G. E.
 Butler, R. B.
 Butler, W. H.
 Chace, F. A.
 Cone, D. E.
 Connell, A. I.
 Creamer, W. H.
 Crispo, P. T.
 Curry, E. F.
 Dolan, W. A.
 Fennelly, D. J.
 French, R. W.
 Gifford, J. H.
 Gilbert, John
 Gordon, S. M.
 Hicks, G. H.
 Howland, C. A.
 Jackson, O. H.
 Jackson, R. W.
 Kelly, Michael
 King, G. C.
 Learned, W. T.
 Lewis, A. C.
 Lindsey, J. H.
 Lowney, J. F.
 MacKnight, A. S.
 Macrae, A. C.
 Marvell, M. W.
 McCarthy, E. A.
 McCreery, C. C.
 Merritt, S. V.
 Normand, J. N.
 O'Brien, J. F.
 Pritchard, W. P.
 Ryder, D. R.
 Sandler, Samuel
 Simmons, R. H.
 Stansfield, C. W.
 Sullivan, L. J.
 Swift, M. B.
 Synan, W. E.
 Tennis, M. N.
 Trainor, J. B.
 Truesdale, P. E.
 Wardle, Henry
 Warren, T. F.
 Wilbur, H. G.
 Wright, W. F.

FALMOUTH (Barnstable).
(See also: West Falmouth.)
Dwight, James
Jones, L. C.
Tripp, E. P.

Feeding Hills (AGAWAM).
Hastings, J. W.

Fisherville (GRAFTON).
Charbonneau, N. N.

Fiskdale (STURBRIDGE).
†Rice, A. B.

FITCHBURG (Worcester North).

Baker, L. F.
Barton, J. A.
Carey, B. W.
Chandler, C. L.
Cornforth, H. H.
Donovan, T. R.
Fish, Louis
Fiske, E. L.
Gay, C. B.
Jacques, Hector
Jennings, C. H.
Jones, R. C.
Kearney, J. H.
Killelea, E. V.
LaFortune, W. T.
Lane, C. R.
Lowell, A. P.
McMurray, F. M.
Mason, A. P.
Miller, E. P.
Morgner, R. A.
Mossman, George
Norton, G. P.
O'Malley, E. F.
Quessey, A. H.
Rice, C. H.
Rice, R. A.
Rodrick, A. F.
Sawyer, W. F.
†Sidney, A. W.
Stimson, J. W.
Sweeney, B. P.
Thompson, F. H.
Thompson, F. H., Jr.
Tully, E. J.
Woodworth, D. S.

Florence (NORTHAMPTON).
Taylor, Walter.

FLORIDA (Berkshire).

Forest Hills (Norfolk) (BOSTON).
Prescott, W. H.

FOXBOROUGH (Norfolk).

Bragg, F. A.
Carlisle, F. H.
Crocker, B. P.
McPherson, G. E.
Moore, F. P.
Neff, I. H.

FRAMINGHAM (Middlesex South).
(See also: Cochituate, Framingham Center, Saxonville.)

Baldwin, S. O.
Benner, H. O.
Bodwell, W. M.
Glass, James
Harriman, C. E.
Healy, D. L.
Hobbs, E. A.
Jessaman, L. W.
Morrow, W. R.

FRAMINGHAM (continued).

Owen, A. S.
Palmer, L. M.
Potter, F. W.
Potter, J. C.
St. Clair, A. E.
Spaulding, E. R.

Framingham Center (FRAMINGHAM).
Bigelow, E. H.

FRANKLIN (Norfolk).

†Faxon, E. M.
Gallison, A. J.

FREETOWN (Bristol North).

Briggs, C. A.

GARDNER (Worcester North).

(See also: East and West Gardner.)

Bailey, C. H.
Ellam, H. W.
†Greenleaf, J. R.
Kenworthy, M. E.
Lachance, A. P.
Lowell, A. F.
Lundwall, L. S. B.
Paine, H. L.
Poole, L. E.
Sawyer, E. A.
Underwood, G. B.

GAY HEAD (Bristol South).

GEORGETOWN (Essex North).

Root, R. B.
Root, R. H.

GILL (Franklin).

GLOUCESTER (Essex South).

(See also: Annisquam and East Gloucester.)

Burnham, Parker
Carvell, Hanford
Choate, H. H.
Cook, S. P. F.
Egan, J. J.
Finegan, D. J.
†Garland, A. S.
Garland, Roy
Hallett, E. B.
Hubbard, E. D.
Knowles, J. H.
Logan, F. P. T.
Moore, P. P.
Mooring, S. W.
Morrow, C. H.
Proctor, P. C.
Rowley, William
Torrey, A. S.

GOSHEN (Hampshire).

GOSNOLD (Bristol, North).

GRANBY (Hampshire).

GRAFTON (Worcester).

(See also: Fisherville and North Grafton.)
Guild, F. W.

GRANVILLE (Hampden).

White, C. A.

GREAT BARRINGTON (Berkshire.)

(See also: Housatonic.)

Chapin, C. S.
Kennedy, E. A.
Parks, S. H.
Stockwell, E. W.

GREENFIELD (Franklin).

Best, E. G.
Canedy, C. F.
Clark, W. K.
Croft, B. P.
Donahue, F. W.
Greenough, C. M.
Howe, H. N.
McConnell, D. J.
Millett, F. A.
Stetson, H. G.
Twitchell, G. P.
Zabriskie, F. H.

GREENWICH (Hampshire).

GROTON (Middlesex North).
Kilbourn, A. G.

GROVELAND (Essex North).
Woodbury, L. A.

HADLEY (Hampshire).

Johnson, H. L.
Smith, F. H.

HALIFAX (Plymouth).

HAMILTON (Essex South).
(See also: South Hamilton.)
Corcoran, J. G.

HAMPDEN (Hampden).

HANCOCK (Berkshire).

HANOVER (Plymouth).
Hammond, Charles
MacMillan, A. L.

HANSON (Plymouth).

HARDWICK (Worcester).

HARVARD (Worcester).
Royal, H. B.

HARWICH (Barnstable).
(See also: West Harwich.)
Handy, H. D.
Kline, G. M.
Miller, P. F.
Smyser, C. J.

Hathorne (DANVERS).
Macdonald, J. B.

HATFIELD (Hampshire).

†Barton, C. M.
Bonneville, A. J.
Byrne, C. A.

HAVERHILL (Essex North).

(See also: Bradford.)

Archambault, L. M.
Benson, C. S.
Bryant, J. E.
Capeles, T. F.
Carden, C. J.
†Chase, I. E.
Clarke, I. J.
Collin, F. H.
Cogswell, William
Conner, H. L.
Connor, G. J.
Cooney, M. B.
Cotter, T. F.
Croston, J. F.
Donahue, Hugh
Dunn, C. S.

HAVERHILL (continued).

Durant, C. E.
 Ferrin, W. W.
 Fitzgerald, J. J.
 George, A. P.
 Holbrook, C. A.
 Holden, W. D.
 Hubbell, A. M.
 Kaplovitch, Henry
 Kelleher, J. E.
 Laskey, E. P.
 LeGro, L. B.
 McFee, W. D.
 McLaughlin, A. O.
 Mindlin, Carl
 Mysel, H. A.
 Nettle, Paul
 Perkins, H. B.
 Pierce, F. B.
 Pitcher, H. F.
 Popoff, Constantine
 Robinson, W. P.
 Ruel, J. A.
 Sproull, John
 Still, C. W.
 Stokes, L. T.
 Stone, T. N.
 Sullivan, F. A.
 Symonds, A. G.
 Whitney, G. B.
 Whitten, G. E.

HAWLEY (Franklin).

Haydenville (WILLIAMSBURG).

Perry, C. E.
 Wheeler, C. H.

HEATH (Franklin).

HINGHAM (Norfolk South).

Day, C. O.
 Dorr, C. A.
 Morse, A. G.
 Peterson, J. A.
 Whelan, Charles

HINSDALE (Berkshire).

HOLBROOK (Norfolk South).

Cole, A. J.
 Crawford, F. W.
 Kennison, F. M.

D

D

HOLDEN (Worcester).

Holt, H. A.
 Stickney, C. W.
 Washburn, F. H.

D

HOLLAND (Hampden).

D

HOLLISTON (Middlesex South).

Dodd, J. E.
 Heffernan, D. W.

D

HOLYOKE (Hampden).

Allen, C. A.
 Allen, F. H.
 Bagg, E. P., Jr.
 Bigelow, J. B.
 Bliss, J. L.
 Bonvier, C. W.
 Brady, W. F.
 Carroll, J. J.
 Cavanaugh, T. E.
 Celece, F. F.
 Celece, J. H.
 Clark, G. H.
 Clarke, L. H.
 Cleary, R. E.
 Cox, S. C.

HOLYOKE (continued).

Davis, E. M.
 Dickson, R. E.
 Donoghue, D. F.
 Farr, I. H.
 Forster, J. F.
 Franz, Adolph
 Gabler, G. L.
 Hanifin, J. F.
 Henderson, G. D.
 Holyoke, Frank
 Hubbard, J. C.
 Hunt, A. E. P.
 Hunt, G. E.
 Hurley, P. E.
 Hussey, E. J.
 Irwin, G. G.
 Kilburn, I. N.
 Kinne, G. L.
 Knowlton, E. A.
 Lynch, H. E.
 Mahoney, S. A.
 McCabe, J. J.
 Morrison, R. F.
 Potts, J. H.
 Rosenbloom, C. W.
 Ryan, W. P.
 Taylor, G. L.
 Teahan, William
 Warren, E. D.
 Wetherell, A. B.

HOPEDALE (Worcester).

HOPKINTON (Middlesex South).

Playse, L. F.

Housatonic (GREAT BARRINGTON).

Jones, W. W.
 Luchsinger, H. W.

HUBBARDSTON (Worcester).

Knowlton, W. T.

HUDSON (Middlesex South).

Breen, J. H.
 Hunter, N. McL.

HULL (Norfolk South).

(See also: Allerton.)
 Sylvester, C. P.

HUNTINGTON (Hampshire).

Crittenden, G. A.
 †Gibbs, L. V.
 Kimball, W. G.
 Mace, C. H.

Hyannis (BARNSTABLE).

Baker, C. M.
 Binford, F. A.
 Chase, H. B.
 Harris, C. E.
 Hawes, E. E.

Hyde Park (Norfolk) (BOSTON).

Barnum, F. G.
 Baxter, E. H.
 Bennett, W. H.
 Bryant, C. E.
 Carr, P. W.
 Ellis, E. K.
 O'Connor, J. H.
 Slack, F. H.
 Stack, C. F.

Indian Orchard (SPRINGFIELD).

Harrington, M. W.
 Smith, S. F.
 Whitney, E. U.
 Whitney, H. M.

Ipswich (Essex South).

Bailey, G. G.
 MacArthur, G. E.
 McGinley, M. C.

Jamaica Plain (Norfolk) (BOSTON).

Berry, W. C.
 Bigelow, A. H.
 Bond, S. A.
 Bridgman, B. N.
 Broderick, F. P.
 †Broidrick, J. P.
 Broughton, A. N.
 Broughton, H. W.
 Brown, H. R.
 Callahan, H. A.
 Collier, L. H. G.
 Dane, John
 Ernst, H. C.
 Faunce, C. B., Jr.
 Fitz-Simmons, H. J.
 Holland, H. T.
 Howland, G. L.
 Lane, E. B.
 Leard, J. S. H.
 Leary, O. C.
 Leary, Timothy
 McCready, L. T.
 McKenna, F. P.
 McMann, W. H.
 Malone, Charles
 Noyes, William
 O'Brien, W. J. L.
 O'Keefe, D. T.
 Ordway, M. D.
 Perry, A. P.
 Reid, I. E. R.
 Richardson, M. W.
 Robinson, W. H.
 Rollins, E. T.
 Smith, Theobald
 Spear, E. D.
 Stedman, J. C.
 Stone, J. G.
 Taylor, F. L.
 Turnbull, F. M.
 Vickery, L. F.
 Woodworth, J. D. R.

KINGSTON (Plymouth).

Holmes, A. B.

LAKEVILLE (Bristol North).

LANCASTER (Worcester).

Beckley, C. C.

LANESBOROUGH (Berkshire).

Downing, F. C.

LAWRENCE (Essex North).

†Abbot, S. W.
 Allen, G. S.
 Bain, J. B.
 Bannon, J. H.
 Bartley, J. J.
 Beely, L. G.
 Bier, M. D.
 Birmingham, R. M.
 Burgess, C. J.
 Burnham, J. F.
 Bushold, F. G.
 Calitri, Constant
 Carleton, C. G.
 Chesley, A. E.
 Cody, H. C.
 Conlon, F. A.
 Cregg, F. A.
 Cutter, A. H.
 Cyr, E. E.
 Daly, T. J.

LAWRENCE (continued).

Deacy, J. J.
 Dearborn, H. F.
 Dorgan, J. A.
 Dorion, Kinton
 Dow, G. W.
 Forster, R. W.
 Fuller, E. P.
 Grant, W. V.
 Hancock, A. W.
 Hilton, J. J. H.
 Hogan, J. A.
 Howard, J. F.
 Howe, G. P.
 Hughes, P. J.
 Joyce, T. F.
 Kazanjian, H. P.
 Kurth, G. E.
 Lawlor, E. F.
 Lemleux, T. A.
 Lovek, J. A.
 Manahan, H. W.
 Massé, J. B.
 McAllister, F. D.
 McArdle, J. J.
 McGauran, M. S.
 McKallagat, P. L.
 Merrill, W. H.
 Moeckel, C. R.
 Murphy, T. W.
 Nevers, H. H.
 Oeser, P. R.
 O'Sullivan, J. J.
 Redmond, T. H.
 Reed, V. A.
 Riordan, W. D.
 Sargent, G. B.
 Sargent, O. F. L.
 Schwartz, Myer
 Simon, A. L.
 Sinclitico, Giuseppe
 Siskind, A. L.
 Sullivan, M. F.
 Sullivan, W. J.
 Uniac, T. V.
 Walch, J. F.

LEE (Berkshire).

Hassett, J. J.
 Markham, E. W.

LEICESTER (Worcester).

(See also: Rochdale.)
 McNeish, Alexander

LENOX (Berkshire).

Carroll, M. J.
 Jaques, H. P.

LEOMINSTER (Worcester North).

(See also: North Leominster.)

Bigelow, C. E.
 Brigham, C. S.
 Currier, W. E.
 Hall, H. P.
 Nye, H. R.
 Pierce, A. H.
 Pitcher, H. B.
 Shaughnessy, T. A.
 Shultis, F. C.
 Wheeler, A. A.

LEVERETT (Franklin).

LEXINGTON (Middlesex South).

(See also: North Lexington.)
 Barnes, W. L.
 Piper, F. S.
 Smithwick, M. P.
 Tilt, W. J. O.
 Tyler, W. M.
 Valentine, H. C.

LEYDEN (Franklin).

LINCOLN (Middlesex South).

(See also: South Lincoln.)
 Loring, R. G.

LITTLETON (Middlesex North).

LONGMEADOW (Hampden).

(See also: East Longmeadow.)

LOWELL (Middlesex North).

Ailing, M. L.
 Baker, C. S.
 Bellehumeur, D. S.
 Benner, B. R.
 Bertrand, A. E.
 Blanchard, P. D.
 Boyle, J. F.
 Brady, C. N.
 Brady, F. R.
 Brunelle, Pierre
 Bryant, M. D.
 Caisse, G. E.
 Carroll, T. F.
 Cassidy, J. J.
 Clark, E. J.
 Coburn, H. F.
 Collins, W. M.
 Dennett, A. G.
 Eaton, W. G.
 Field, J. B.
 Finnegan, F. A.
 Fishman, Maurice
 French, C. E.
 Gage, F. L.
 Gage, J. A.
 Gardner, A. R.
 Gillard, A. E.
 Halloran, T. J.
 Halpin, A. J.
 †Huntress, Leonard
 Jackson, W. B.
 Johnson, J. B. A.
 Johnson, W. A.
 Jones, R. LeR.
 Jones, W. M.
 Kearney, J. P.
 Lambert, J. H.
 Lamoureaux, J. E.
 †Lathrop, W. H.
 Lavalée, G. O.
 †La Vigne, A. W.
 Lawler, W. P.
 Leahy, G. H. A.
 Le May, A. M.
 Livingston, C. B.
 Livingston, E. G.
 Loughran, J. F.
 Mahoney, M. P.
 Mahoney, F. R.
 McAdams, J. P.
 McCarty, J. J.
 McCluskey, R. J.
 McGannon, T. G.
 Meehan, P. J.
 Mehan, J. A.
 Meigs, J. V.
 Meigs, R. J.
 Mignault, Rodrigue
 Murphy, E. M.
 Murphy, F. P.
 O'Conner, J. B.
 Pachanian, S. K.
 †Parker, M. G.
 Parker, R. W.
 Pillsbury, B. H.
 Pillsbury, F. F.
 Pillsbury, G. H.
 †Pinkham, G. E.
 Plunkett, H. B.

LOWELL (continued).

Pulsifer, Nathan
 Randall, G. M.
 Robertson, E. A.
 Rodger, J. V.
 Rogers, J. A.
 Roughan, C. M.
 Ryan, W. F.
 †Sanders, C. B.
 Shaw, A. E.
 †Shaw, T. P.
 Simpson, C. E.
 Smith, F. H.
 Smith, T. B.
 Stewart, R. C.
 Sullivan, J. F.
 Sumner, H. H.
 †Swan, C. W.
 Sweetsir, C. L.
 Tighe, M. A.
 Viles, C. A.
 Welch, E. J.
 Wilson, C. D.
 Young-Slaughter, E. E.

LUDLOW (Hampden).

Hoyt, P. A.

LUNENBURG (Worcester North).

Woods, C. E.

LYNN (Essex South).

Abbott, H. E.
 †Ahearne, C. A.
 Bangs, C. H.
 Bedard, J. A.
 Bennett, H. P.
 Berg, T. A. J.
 Bixby, O. E.
 Blair, O. C.
 Blaisdell, J. H.
 Breed, N. P.
 Burrows, M. C.
 Carr, G. L.
 Chicoine, I. H.
 Clarke, H. C.
 Cobb, C. M.
 Darling, A. E.
 Davis, H. L.
 Davis, S. R.
 De Langle, C. P.
 Dennison, A. S.
 Devlin, P. C.
 Donovan, M. R.
 Fraser, W. L.
 Garipay, E. P.
 Grady, T. F.
 Grant, J. H.
 Gray, G. H.
 Hagopian, L. G.
 Harriman, Perley
 Harris, A. E.
 Harris, W. DeB.
 Hartman, Gustave
 Hassett, L. W.
 Hawes, A. T.
 †Hayden, D. H.
 Hennessey, T. F.
 Hoitt, C. L.
 Hopkins, W. T.
 Jenkins, C. E.
 Johnson, H. A.
 Jones, E. W.
 Jones, J. A.
 Joslyn, A. E.
 Judkins, C. L. M.
 Judkins, F. L.
 Kirkpatrick, G. H.
 Lane, F. A. (East Lynn)
 Lemaire, W. F. (East Lynn)
 Little, W. B.
 Lougee, F. T.

LYNN (continued).

Lougee, G. W.
 Lovejoy, C. A.
 Lovell, C. D. S.
 Lyons, G. A.
 McIntyre, F. J.
 MacRobbie, Alexander
 Mangan, J. J.
 Manix, E. T.
 Marshall, W. R.
 Martel, Stanislaus
 Martin, A. H.
 Martin, J. B.
 Mathes, R. W.
 Metzger, Butler
 Morse, F. A.
 Munroe, H. B.
 Nathanson, E. S.
 Newhall, A. L.
 Newhall, H. F.
 Newhall, H. W.
 O'Keefe, E. S.
 O'Reilly, W. F.
 O'Shea, J. F.
 Pinkham, J. G.
 Quennell, W. L.
 Rich, C. E.
 Richardson, B. F.
 Robins, S. A.
 Roddy, M. B. (East Lynn).
 Ruppel, C. E. F.
 Ruppel, M. D.
 Sheldon, C. C.
 Shepherd, W. G.
 Smith, M. C.
 Stockbridge, A. H.
 Stone, C. E.
 Stone, F. E.
 Trask, J. W.
 Tucker, A. W.
 Wainshel, P. W.
 Ward, W. G.
 White, Everett
 White, J. R.
 Worthen, C. A.

LYNNFIELD (Essex South).
 Freeman, F. W.

MALDEN (Middlesex South).

Barron, E. W.
 Brown, R. N.
 Bychower, Victor
 Conley, B. F.
 Corbett, J. J.
 Cummings, M. E.
 Deal, G. F.
 Fales, A. C.
 Gallagher, N. A.
 Gay, F. W.
 †Goodwin, R. J. P.
 Griffin, A. G.
 Hartwell, W. W.
 Hoberman, Samuel
 Hunt, W. E.
 Johnson, H. S.
 Jones, C. D.
 Kingsbury, W. W.
 Konikow-Bucholz, A. F.
 Lawrence, J. W.
 Lougee, W. W.
 MacDonald, W. C.
 MacMichael, E. H.
 MacNeil, S. S. J.
 McBain, W. H.
 McCarthy, C. D.
 McCarthy, L. F.
 †Norris, A. L.
 Pavlo, S. G.
 Plummer, F. J.
 Plummer, F. W.

MALDEN (continued).

Prior, C. E.
 Proctor, J. W.
 Ryder, Godfrey
 Smith, W. F.
 Staples, C. H.
 †Stevens, A. J.
 Thomas, C. L.
 Thompson, R. H.

Manchaug (Sutton).
 Couillard, P. L.

MANCHESTER (Essex South).
 Blaisdell, G. W.
 Glendenning, R. T.

MANSFIELD (Bristol North).
 Allen, W. H.
 Cook, J. W.
 Dunbar, F. H.
 Latham, B. M.
 Spaulding, J. D.

MARBLEHEAD (Essex South).
 Eveleth, S. C.
 Greenwood, A. M.
 Hall, H. J.
 Ireson, F. R.
 Sanborn, P. L.

MARTON (Bristol South).
 Cobb, A. C.
 Dunham, H. B.

MARLBOROUGH (Middlesex South).
 Chalmers, H. E.
 Hoitt, E. G.
 McCarthy, T. F.
 Redfearn, Joseph
 Reilly, T. E.
 Robinson, H. A.
 Stevens, R. E.
 Warner, C. T.

MARSHFIELD (Plymouth).
 Bartlett, C. W.

MASIPEE (Barnstable).

Mattapan (Norfolk) (BOSTON).
 Behrman, R. A.
 Cheever, A. J.
 Cheever, C. A.
 Cox, S. F.
 Fleming, P. J.
 Grover, J. I.
 Guild, T. E.
 Kelley, R. E. S.
 McCarthy, F. P.
 St. Denis, J. N.
 Scannell, J. J.
 Stearns, R. T.
 White, A. J.
 Winchester, G. W.

MATTAPOISETT (Bristol South).
 Blaine, W. E.
 Tilden, I. N.

MAYNARD (Middlesex South).
 Hamblen, Howard

MEDFIELD (Norfolk).
 Mitchell, Arthur

MEDFORD (Middlesex South).
 (See also: West Medford.)
 Barrett, E. W.
 Burke, W. T.
 Burrell, H. C.

MEDFORD (continued).

Chandler, N. F.
 Clark, J. C. D.
 Clark, M. W.
 Cleaves, J. E.
 Donnell, H. A.
 Fleming, E. R.
 Gahan, P. F.
 Ilsley, F. R.
 Killam, F. H.
 MacKinnon, O. L.
 Parker, W. A.
 Sise, L. F.

MEDWAY (Norfolk).
 (See also: West Medway.)
 Yeaton, G. W.

MELROSE (Middlesex East).
 (See also: Melrose Highlands.)

†Clark, J. S.
 Fay, J. H.
 Fish, E. C.
 Hopkins, J. W.
 Jack, E. S.
 Jackson, H. B.
 Leonard, R. D.
 Marr, E. L.
 Perley, R. D.
 Pike, F. F.
 Raynes, M. B.
 Sims, F. R.
 Small, A. E.
 Stratton, R. R.

Melrose Highlands (MELROSE).
 Gage, A. T.
 Harlow, C. W.
 Provandie, P. H.

MENDON (Worcester).

MERRIMAC (Essex North).
 Sweetsir, F. E.

METHUEN (Essex North).
 Baketel, R. V.
 Cushman, H. L.
 Lawlor, R. H.
 Parr, John

MIDDLEBOROUGH (Bristol North).
 Coolidge, Sumner
 Elliott, Alfred
 †Ellis, G. L.
 Holmes, D. H.

MIDDLEFIELD (Hampshire).

MIDDLETON (Essex South).
 Ewing, G. W.

MILFORD (Worcester).
 French, J. M.
 Keith, H. L.
 Knight, M. W.

MILLBURY (Worcester).
 Brown, A. A.
 Church, C. A.
 Hurd, A. G.
 Lincoln, J. R.

MILLIS (Norfolk).

MILTON (Norfolk).
 (See also: East Milton.)
 Bartol, E. F. W.
 Edsall, D. L.
 Forbes, Alexander
 Kite, W. C.
 Lane, W. A.
 Pierce, G. B.
 Pierce, M. V.
 Rackemann, F. M.
 Williams, C. H.

Mittineague (WEST SPRINGFIELD).
Downey, H. A.

MONROE (Franklin).

MONSON (Hampden).
Ellis, F. W.
Jackson, C. W.
King, G. E.
Thom, D. A.

MONTAGUE (Franklin).
(See also: Turner's Falls.)
Cooke, G. A.

MONTEREY (Berkshire).

MONTGOMERY (Hampden).

MOUNT WASHINGTON (Berkshire).

NAHANT (Essex South).
Cusick, L. F.

NANTUCKET (Bristol South).
Grouard, J. S.

NATICK (Middlesex South).
(See also: South Natick.)
Bancroft, G. A.
Baum, E. G.
Burke, M. F.
Cochran, W. J.
Cook, C. H.
Sylvester, W. H.
Walcott, W. W.

NEEDHAM (Norfolk).
(See also: Needham Highlands.)
Coppinger, S. E.
DeLue, F. S.
†Kingsbury, A. D.
†Mansfield, H. T.
Parker, F. D.
Pease, C. W.
Schirmer, J. W.

Needham Highlands (NEEDHAM).
Mitchell, William

NEW BEDFORD (Bristol South).
Allen, H. C.
Atchison, C. M.
Bonnar, J. M.
Bonney, C. A., Jr.
Brunelle, A. L.
Bullard, J. T.
Canney, E. R.
Cody, E. F.
Connor, C. F.
Croacher, A. W.
Dehn, E. W.
Derby, C. A.
Foster, E. E.
Gardner, E. D.
Hathaway, J. G.
Hayes, S. W.
Hough, G. de N.
Hudnut, F. J.
Johnson, E. St. J.
Kirby, H. C.
Leary, C. J.
Lowney, D. J.
Mandell, A. H.
Marsden, George
McAllester, J. J. H.
Moncrieff, W. A.
†Nickerson, W. J.
Nied, W. A.
Nietsch, W. E. L.

NEW BEDFORD (continued).

O'Brien, D. P.
O'Connor, P. H.
Paquin, J. U.
Pearce, G. G.
Perras, L. A.
Perry, H. E.
Peterson, C. A. B.
Pitta, J. C. da S.
Pothier, J. C.
Potter, L. F.
Pratt, C. A.
Pratt, D. D.
†Prescott, C. D.
Prescott, H. D.
Robbins, E. E.
Robbins, E. S.
St. Germain, J. P.
Salles, J. M.
Scaver, E. P., Jr.
Senesac, A. N.
Stetson, F. E.
Stevens, H. L.
†Tucker, E. T.
Turner, W. K.
Weaver, H. V.
Webber, A. P.
Weeks, J. F.
Wheeler, E. H.
Whitney, E. M.
Winslow, B. S.
Wood, H. W.
Young, E. W.

NEW BRAINTREE (Worcester).

NEWBURY (Essex North).

NEWBURYPORT (Essex North).

Day, C. C.
Hamilton, R. De L.
Healy, T. R.
Hurd, R. C.
Little, A. N.
Nason, A. C.
Noyes, E. H.
Peter, A. J.
†Pillsbury, W. W.
Shaw, J. W.
Snow, F. W.
Tigh, Frederick
Toppan, R. L.

NEW MARLBOROUGH (Berkshire).

NEW SALEM (Franklin).

NEWTON (Middlesex South).

(See also: Newton Center, Newton Highlands, Newton Upper Falls, Newtonville, West Newton, Auburndale, Chestnut Hill, Waban.)
Abbott, F. H.
Cummings, A. C.
Dempsey, J. E.
†Eddy, G. S.
Gallagher, T. M.
Hopkinton, George
Leary, A. J.
Marcy, H. O., Jr.
Marston, W. W.
Maskell, L. J.
Mellus, Edward
Moore, Howard
O'Donnell, F. M.
Painter, C. F.
Pearson, C. L.
Reid, W. D.
Ripley, W. L.
Stanton, Joseph
†Stone, L. R.
Stubbs, F. R.
Webber, F. W.
Young, J. H.

Newton Center (NEWTON).

Andrews, E. A.
†Crawford, S. M.
Friedman, L. V.
Hood, M. G.
Loring, R. P.
May, G. E.
Sylvester, P. H.
Watters, Henry
West, G. L.

Newton Highlands (NEWTON).

Bartlett, P. C.
Brickett, B. H.
Mellen, E. W. A.
Thompson, C. A.
Withee, F. E.

Newton Upper Falls (NEWTON).

†Everett, W. S.
McOwen, W. H.

Newtonville (NEWTON).

Baker, D. E.
Clark, F. R.
Hunt, H. O.
Hunt, W. O.
Thayer, H. W.
†Trow, W. M.

NORFOLK (Norfolk)

Norfolk Downs (QUINCY).
Sweeney, M. T.

North Abington (ABINGTON).

Rand, R. B.
Wheatley, F. G.

NORTH ADAMS (Berkshire).

Brown, M. M.
Brown, O. J.
Brown, W. E.
Gignere, A. J.
Jones, L. A.
Matte, J. H. A.
†Millard, H. J.
Riley, J. H.
Russell, E. E.
Stafford, F. D.
Thompson, G. H.
Vrooman, E. M.

North Amherst (AMHERST).

Stowell, Joab.

NORTHAMPTON (Hampshire).

(See also: Florence.)
Adams, W. H.
Ball, A. N.
Brown, E. W.
Clark, S. A.
Collins, J. D.
Collins, W. J.
Cooney, M. E.
Dow, F. E.
Fahey, J. C.
Fay, J. M.
Gardner, C. R.
Gilman, Florence
Hanson, J. G.
Hayes, J. E.
Hitchcock, J. S.
Houston, J. A.
James, B. F., Jr.
Leeper, M. E.
McCormick, A. H.
Minshall, A. G.
Perry, H. B.
†Seymour, Christopher
Shores, H. T.
Thayer, G. D.
Thomas, E. E.

NORTH ANDOVER (Essex North).

Daly, J. J.
Smith, F. S.

NORTH ATTLEBOROUGH (Bristol North).

Carley, F. J.
Gerould, J. B.
Kilby, H. S.
Shoemaker, A. B.
Ward, E. S.

NORTHBOROUGH (Worcester).

†Barnes, H. J.
Stanley, J. M.

NORTHBRIDGE (Worcester).

(See also: Whitinsville.)

NORTH BROOKFIELD (Worcester).

Phelan, E. F.

North Chelmsford (CHELMSFORD).

Varney, F. E.

North Dana (DANA).

Ellis, A. H.

North Easton (EASTON).

McCabe, F. J.
Porter, R. B.
Stevenson, W. M.
Tilden, F. E.

NORTHFIELD (Franklin).

Newton, A. L.
Philbrick, R. H. (East)
Wood, N. P.

North Grafton (GRAFTON).

Clapp, F. H.
Pattrell, A. E.
Smith, W. L.
Stevenson, E. A.

North Leominster (LEOMINSTER).

†Neilson, William

North Lexington (LEXINGTON).

†Webster, J. R.

North Oxford (OXFORD).

Stone, Byron

NORTH READING (Middlesex East).

Averill, C. W.
Burns, N. B.
MacCorison, C. C.

North Weymouth (WEYMOUTH).

Drake, W. A.

North Wilbraham (WILBRAHAM).

Damon, A. L.

NORTON (Bristol North).

Round, A. M.

NORWELL (Plymouth).

NORWOOD (Norfolk).

Field, H. M.
Fogg, I. S.
Gould, C. S.
Hagerty, J. J.
Hartwell, A. S.
Norton, E. C.
Plimpton, L. H.
Riemer, H. B. C.

OAKHAM (Worcester).

OAK BLUFFS (Bristol South).

ORANGE (Franklin).

Maher, H. C.
Smith, H. F. M.
Ten Broeck, S. J.

ORLEANS (Barnstable).

Besse, F. A.

Osterville (BARNSTABLE).

Kinney, D. D'A.

OTIS (Berkshire).

OXFORD (Worcester).

(See also: North Oxford.)
Fletcher, R. S.
Woodward, J. R.

PALMER (Hampden).

(See also: Bondsville, Thorndike
and Three Rivers.)
Cleaves, H. F. T.
Flood, Everett
Greene, R. A.
Hodskins, M. B.
Schneider, J. P.

PAXTON (Worcester).

PEABODY (Essex South).

Carroll, H. G.
Foss, R. E.
Foster, H. K.
Hickey, J. J.
Jordan, J. F.
Kelley, L. K.
Kennard, H. D.
Shanahan, John
Tucker, S. C.
Varney, E. M.

PELHAM (Hampshire).

PEMEROKE (Plymouth).

(See also: Bryantsville.)

PEPPERELL (Middlesex North).

Heald, C. G.
Qua, L. R.

PERU (Berkshire).

PETERSHAM (Worcester North).

PHILLIPSTON (Worcester North).

PITTSFIELD (Berkshire).

Bartlett, O. L.
Blanchard, R. H.
Burton, S. C.
Colt, Henry
Coolidge, F. S.
Currier, W. H.
Dodd, I. S. F.
Eisner, M. S.
England, A. C.
Finkelstein, Nathan
Flournoy, Thomas
Flynn, J. J.
Frawley, W. T.
Hennelly, T. P.
Hill, L. R.
Howard, E. H.
Howe, J. D.
Hunt, G. P.
Kelly, W. P.
Lally, W. J.
Langlois, J. A.
†Leavitt, W. W.
Leslie, C. T.
Littlewood, Thomas

PITTSFIELD (continued).

Mayberry, F. E.
Mellen, H. G.
Mercer, W. J.
Merrill, A. P.
Messer, E. R.
Paddock, B. W.
Paddock, W. L.
Richardson, C. H.
Roberts, F. A.
Schneider, H. A.
†Stephenson, F. B.
Sylvester, A. W.
Taylor, E. H.
Thomes, J. B.
Tracy, W. L.
Wilder, W. O.
Withington, A. B.
Wood, M. A.
Woodruff, R. A.

PLAINFIELD (Hampshire).

PLYMOUTH (Plymouth).

Brown, W. G.
Burns, H. H.
Churchill, J. D.
†Cowles, Edward
Hill, E. D.
Hitchcock, H. R.
Prince, C. O.
Reed, L. B.

PLYMPTON (Plymouth).

PRESCOTT, (Hampshire).

PRINCETON (Worcester).

Lewis, E. S.

PROVINCETOWN (Barnstable).

Birge, E. F.
Birge, W. S.
Curley, C. P.

QUINCY (Norfolk South).

(See also: Atlantic, Norfolk
Downs, West Quincy, Wollas-
ton.)

Blanchard, W. H.
Burke, F. R.
Bushnell, E. H.
Ellsworth, S. W.
Gordon, J. A.
Hardwick, S. C.
Hunting, N. S.
Jones, F. E.
Lynch, C. J.
McCausland, W. J.
Middleton, W. J.
Reardon, B. D.
Reynolds, J. T.
Ryder, G. H.
Sargent, W. L.
Sheahan, G. M.

RANDOLPH (Norfolk South).

Granger, F. C.
Higgins, G. V.
Myrick, A. W.

RAYNHAM (Bristol North).

READING (Middlesex East).

Brown, W. J.
Dow, G. F.
†Edes, R. T.
Halligan, E. M.
Henderson, C. R.
Richmond, E. D.
Smalley, F. L.

REHOBOTH (Bristol North).

REVERE (Suffolk).
 Andrews, F. F.
 Bond, W. G.
 Cummings, E. F.
 Monahan, E. J.
 Morris, J. S.
 Newton, W. C.
 Walker, William
 Walsh, J. E.
 Wilkins, G. A.

RICHMOND (Berkshire).

Rochdale (LEICESTER).
 Leach, E. M.
 Leach, H. M.

ROCHESTER (Bristol South).

ROCKLAND (Plymouth).
 Corey, F. H.
 Frame, Joseph
 Knight, C. E.
 Osgood, Gilman

ROCKPORT (Essex South).
 Cleaves, E. E.
 Stone, G. A. (Pigeon Cove)
 Tupper, A. M.

Roslindale (Norfolk) (BOSTON).
 (See also: Forest Hills.)
 Allen, A. N.
 Beede, M. J.
 Ford, J. F.
 King, N. J. Q.
 Lynch, D. L.
 Sawyer, A. R.
 Sawyer, E. LeR.
 Smith, J. H.
 Steele, A. E.
 Stevens, Seriah
 Whitcombe, C. R.

ROWLEY (Essex North).
 Pedrick, S. A.

Roxbury (Norfolk) (BOSTON).
 Abbe, E. M.
 Adams, John
 Addelson, Nathan
 Adler, H. M.
 Ascher, Joseph
 Bardwell, F. A.
 Barry, J. H.
 Bartlett, W. O.
 Bernard, B. L.
 †Bolles, W. P.
 Bradley, C. S.
 Breck, Samuel
 Bresnahan, J. F.
 Brooks, E. M.
 Brownrigg, J. S.
 Callanan, S. A.
 Clement, G. W.
 Coupal, J. F.
 Coyne, T. J.
 Cronin, M. J.
 Cushing, E. W.
 Cushman, G. T.
 Daly, B. T.
 Darling, C. B.
 Davidson, K. M.
 Deans, H. C.
 Dunbar, F. C.
 †Edson, P. O'M.
 Emery, W. H.
 Farr, E. L.
 Frank, Morris
 Galligan, E. T.
 Gavin, J. H.

Roxbury (continued).
 Gerstein, Maurice
 Glunts, David
 Goodman, Samuel
 Gray, A. M.
 Gray, E. T.
 Greene, T. F.
 Greene, W. H.
 Guthrie, A. D.
 Hall, J. B., Jr.
 Harvey, W. W.
 Hermann, O. J.
 Hodges, A. D.
 Homans, John
 Hornor, A. A.
 Howard, H. B.
 Howard, M. E. P.
 Johnson, D. J.
 Keeler, W. B.
 Knowlton, C. D.
 Konikow, M. J.
 Libby, E. N.
 Linenthal, Harry
 Littlefield, S. H.
 Lockary, J. L.
 Macdonald, C. W.
 Macdonald, F. C.
 Mansfield, J. A.
 Martin, Edward
 Martin, J. M.
 Mason, G. McC.
 May, J. S.
 McCormick, T. J. H.
 McGurn, W. J.
 McLaughlin, J. I.
 McLeod, J. S.
 Moore, M. T. V.
 †Moran, J. B.
 Murphy, E. T.
 Murphy, T. J.
 Newburgh, L. H.
 Ober, F. R.
 O'Brien, T. J.
 O'Connor, T. H.
 O'Keefe, A. M.
 Olin, Harry
 Parks, E. L.
 Patch, W. T.
 Patten, S. K.
 Pigeon, J. C. D.
 Powers, E. P.
 Richmond, Simon
 Sanborn, J. W.
 Schmidt, F. S.
 Schorer, C. B. J.
 Scott, G. H.
 Shay, C. E.
 Shay, T. M.
 Shohan, Joseph
 Shulman, D. H.
 Snow, F. S.
 Sternberg, J. E.
 Stetson, F. W.
 Sughrue, D. F.
 Sullivan, J. L.
 Thayer, Eugene
 Turetzky, W. L.
 Walker, I. C.
 Wardwell, J. K.
 Wernick, B. G.
 †Wescott, W. H.
 West, E. G.
 White, H. W.
 White, P. D.
 White, W. A.
 †Williams, E. T.
 Winn, C. H.
 Young, R. R.

ROYALSTON (Worcester North).

RUSSELL (Hampden).

RUTLAND (Worcester).
 Chamberlain, W. E.
 Crane, B. T.
 Washburn, Elliott

Sagamore (Bourne).
 Curry, E. F.

SALEM (Essex South).
 Ahearne, C. A., Jr.
 Atwood, F. S.
 Blair, G. K.
 Burbeck, E. K.
 Carlton, F. C.
 †Choate, David
 Curtis, C. L.
 Donaldson, J. F.
 Elliot, H. L.
 Field, M. T.
 Finnegan, P. J.
 Goodell, G. Z.
 Hennessey, W. W.
 Kittredge, Thomas
 LeBoeuf, A. T.
 Lesses, Max
 McDermott, W. V.
 Noyes, W. N.
 Peirson, E. L.
 Perkins, R. S.
 Phippen, Hardy
 Phippen, W. G.
 Porier, Emile
 Porier, Horace
 Robbins, F. G.
 Rushford, E. A.
 Sargent, A. N.
 Sheehan, W. J.
 †Shreve, O. B.
 Simpson, J. E.
 Sturgis, B. F., Jr.
 Towle, E. D.
 Tucker, G. E.
 Wilson, C. M.

SALISBURY (Essex North).

SANDSFIELD (Berkshire).

SANDWICH (Barnstable).
 Beale, S. M., Jr.
 Carrier, C. R.
 Procter, T. W.

SAUGUS (Essex South).
 (See also: Cliftondale.)
 Gale, G. W. (East)
 Parcher, G. C.

SAVOY (Berkshire).

Saxonville (FRAMINGHAM).
 Carr, C. J.

SCITUATE (Plymouth).
 (See also: Scituate Center, Scituate Harbor.)

Scituate Center (SCITUATE).
 Handy, H. T.

Scituate Harbor (SCITUATE).
 Alexander, T. B.

SEEKONK (Bristol North).

SHARON (Norfolk).
 Dole, C. F.
 Griffin, W. A.
 McIntosh, Herbert

SHEFFIELD (Berkshire).
 Wakefield, A. T.

SHELburnE (Franklin).
(See also: Shelburne Falls).

Shelburne Falls (SHELburnE).
†Canedy, F. J.
Guild, B. T.
Upton, C. L.

SHERborn (Middlesex South).
Lancaster, W. B.

SHIRLEY (Worcester North).
(See also: Shirley Village.)

Shirley Village (SHIRLEY).
Peirce, C. J.

SHREWSbury (Worcester).
Bliss, W. H.
Chase, E. L.

SHUTESbury (Franklin).

SOMERSET (Bristol South).

SOMERVILLE (Middlesex South).
(See also: West Somerville.)

Allison, C. E.
Bateman, F. E.
Bell, R. D.
Bell, W. A.
Bolton, C. J.
†Booth, E. C.
Buffum, H. E.
Carvill, A. H.
Carvill, L. M.
Caswell, B. H.
Curtis, H. F.
Dailey, E. J.
Dervin, L. J.
Durell, T. M.
Finnerty, C. W.
Follett, A. M.
Gunter, F. C.
Haché, H. C.
Hanscom, Sanford
Hatchett, W. J.
Hegerty, J. G.
Hodgdon, R. F.
Lee, W. T.
Maguire, C. F.
Maguire, E. L.
McCaffrey, C. F.
Merrill, A. E.
Meyer, E. J.
Mongan, C. E.
Morse, F. L.
Newton, E. R.
Place, R. W.
Raymond, L. H.
†Sanborn, E. A.
Sawin, C. D.
Sewall, E. F.
Shanahan, T. J.
Smith, F. G.
Stephens, F. N.
Stoodley, H. M.
Towle, C. C.
Trueman, H. S.
Walker, H. A.
†White, E. L.
White, M. W.
Whiting, G. W. W.
†Willis, Reuben
Yenetchi, H. A.

SOUTHAMPTON (Hampshire).

SOUTHBOROUGH (Worcester).

South Boston (BOSTON).

Ayers, C. E.
Bancroft, W. B.
Boland, E. S.
Buckley, P. T.
Cross, W. P.
Denning, F. J.
Devine, W. H.
Doggett, F. F.
Fletcher, R. W.
Gallivan, W. J.
Gavin, M. F.
Hurley, E. D.
Jakmauh, P. J.
Keenan, H. J.
Morris, G. P.
Morris, J. G.
Reddy, J. W.
Redmond, J. W.
Regan, J. J.
Rochford, R. A.
†Ruddick, W. H.
Ryder, W. I.
Sheehan, W. J.
Sheridan, P. E. A.
Slattery, J. R.
Stuart, F. W.
Timmins, E. F.
Tracy, E. A.
Tynan, J. P.

South Braintree (BRANTREE).

Dame, F. R.
Merriam, F. H.
Sullivan, C. A.
Watson, J. W.

SOUTHBRIDGE (Worcester).

Bradford, C. C.
Cutler, M. F.
Olin, F. H.
Pagé, J. G. E.
Reed, L. C.
Reed, W. G.

South Dartmouth (DARTMOUTH).

Cushman, A. B.
Richards, G. L.

South Deerfield (DEERFIELD).

Suitor, H. A.

South Dennis (DENNIS).

Davis, C. A.

SOUTH HADLEY (Hampshire).

(See also: South Hadley Falls.)
Lang, H. B.
Patterson, A. M.
Raymond, C. S.
Underhill, E. C.

South Hadley Falls (SOUTH HADLEY).

Doonan, H. E.
Leland, F. LeR.

South Hamilton (HAMILTON).

Davis, C. H.

South Lincoln (LINCOLN).

Blodgett, S. H.
Hart, J. S.

South Natick (NATICK).

Hills, C. E.

South Sudbury (SUDBURY).

Oviatt, G. A.

South Weymouth (WEYMOUTH).

Emerson, G. E.
Granger, K. H.
Mayberry, E. N.
Tirrell, V. M.

SPENCER (Worcester).

Peck, A. F.
Sanborn, F. J.

SPRINGFIELD (Hampden).

(See also: Indian Orchard.)

Adams, C. B.
Adams, E. B.
Anthony, J. C.
Bacon, T. S.
Baldwin, E. E.
Bates, E. A.
Beardsley, W. H.
Benner, R. S.
Birnie, J. M.
Blair, O. R.
Boyd, F. P.
Boyd, J. V. W.
Boyer, J. N.
Brigham, F. C.
Broga, W. W.
†Brooks, L. S.
Brown, D. J.
Brown, E. M.
Budington, H. F.
Burke, G. H.
Byrnes, H. F.
Calkins, C. H.
Calkins, I. R.
†Calkins, Marshall
Camfill, R. E.
Carleton, Dudley
Carleton, Ralph
Chapin, D. L.
Chapin, L. D.
Chapin, W. H.
Chapman, C. R.
Claffy, J. McM.
Clapp, A. M.
†Clark, David
Cort, P. M.
Craig, W. G.
Dalton, G. F.
Davidson, H. J. D.
Davis, E. L.
Deane, W. H.
Dexter, F. F.
Dillon, M. J.
Downey, C. J.
Dubois, E. C.
Eastman, A. C.
Emerson, H. C.
Everett, F. L.
Finch, G. H.
Foss, G. H.
Furcalow, C. L.
Galvin, A. H.
Gates, E. A.
Gaylord, J. F.
Godfrey, T. F.
Goodell, William
Graham, J. P.
Guild, E. H.
Harriman, D. E.
Herrick, J. T.
Howitt, C. E.
Hill, I. C.
Hillard, J. P.
Hirsch, H. L.
Hooker, C. P.
Hopkins, F. E.
Hosley, W. A.
Hubbard, G. W.
Irwin, V. J.
Johnston, C. C.

SPRINGFIELD (continued).

Judd, E. H.
 Keefe, D. E.
 Kennedy, C. F. J.
 Kennedy, C. M.
 Kilroy, Philip
 Kinloch, R. A.
 La Rochelle, F. D.
 Leary, W. C.
 Lewandowski, J. M.
 Lewis, S. A.
 Lynch, C. F.
 Lynch, P. M.
 McClean, G. C.
 Mahoney, E. J.
 Maloney, J. M.
 Maloney, T. A.
 Marr, R. McC.
 Martin, H. C.
 McGinity, J. T.
 Merritt, V. S.
 Moody, F. F.
 Moriarty, P. M.
 Mulcahy, W. E.
 Myers, E. Y.
 Naurison, J. Z.
 †Nims, E. B.
 Ober, R. B.
 Parmelee, W. J.
 Peck, R. H.
 Pomeroy, W. H.
 Rabinovitz, Bernard
 †Rice, A. R.
 Rice, A. G.
 Ritter, Henry
 Rumrill, S. D.
 Russell, S. J.
 Russell, W. B.
 Ryan, S. E.
 Schadt, G. L.
 Schillander, C. A.
 Seelye, R. H.
 Shaw, W. A.
 Slutskin, M. L.
 Smith, H. L.
 Smith, W. A.
 Spaid, C. J.
 Squier, A. O.
 †Stebbins, G. S.
 Stoddard, M. J.
 Stoneman, E. A.
 Street, C. E.
 Streeter, J. F.
 Sullivan, E. C.
 Sullivan, J. C.
 Sweeney, E. J.
 Sweet, F. B.
 Tracy, J. M.
 Van Allen, H. W.
 Weiser, W. R.
 Weston, G. D.
 White, B. P.
 Wilbur, S. M.
 Wilcox, H. H.
 Williams, A. C.
 †Woods, G. L.
 Zimmerman, Henry

State Farm (BRIDGEWATER).

Baker, L. A.
 Emerson, E. B.
 Kenney, C. B.
 Weller, J. H.

STERLING (Worcester).

Devere, F. H.

STOCKBRIDGE (Berkshire).

Eaton, H. D.
 Haven, H. C.

STOCKBRIDGE (continued).

Riggs, A. F.
 Stockwell, H. E.

STONEHAM (Middlesex East).

Blenkhorn, James
 Kerrigan, J. H.
 Nickerson, G. W.
 Park, F. E.
 Sheehan, M. D.

STOUGHTON (Plymouth).

Faxon, N. W.
 Faxon, W. O.

Stow (Middlesex South).

STURBRIDGE (Worcester).

(See also: Fiskdale.)

SUDBURY (Middlesex South).

(See also: South Sudbury.)

SUNDERLAND (Franklin).

Moline, Charles

SUTTON (Worcester).

(See also: Manchaug.)

SWAMPSCOTT (Essex South).

Bicknell, R. E.
 Godfrey, J. W.
 Grimes, Loring
 Lowd, H. M.

SWANSEA (Bristol South).

†Wellington, J. L.

TAUNTON (Bristol North).

(See also: East Taunton.)

Atwood, C. A.
 †Bassett, E. J.
 Beaulieu, F. X.
 Clark, T. F.
 Crandell, A. R.
 Cusick, T. F.
 Dean, R. D.
 †Deane, A. S.
 Fox, W. Y.
 Galligan, E. J.
 Goss, A. V.
 Hubbard, F. A.
 Learoyd, C. B.
 MacDonald, D. F.
 McGraw, A. J.
 Mehegan, D. J.
 Milot, A. F.
 Murphy, E. F.
 Murphy, F. A.
 Murphy, J. B.
 Murphy, J. L.
 O'Brien, J. F.
 †Paige, Nomus
 †Perry, Martha
 Pierce-Higgins, Eudora
 †Presbrey, S. D.
 Provost, R. G.
 Ripley, H. G.
 Robinson, T. J.
 Sayles, J. B.
 White, H. A.

TEMPLETON (Worcester North).

(See also: Baldwinville.)
 Greenwood, S. E.

TEWKSBURY (Middlesex North).

Coburn, H. R.
 DeWolf, C. W.
 Flaherty, E. J.
 Holmes, H. F.
 Larrabee, H. M.

TEWKSBURY (continued).

Nichols, J. H.
 Perry, Sherman
 Roach, A. J.
 Strom-Lindsay, Marie
 Willoughby, E. C.

Thorndike (PALMER).

Dunphy, H. A.

Three Rivers (PALMER).

Giroux, Charles
 Miller, S. O.

TISBURY (Bristol South). No P. O.

Post Office address, Vineyard Haven.
 Davis, S. T.
 Mayhew, O. S.

TOLLAND (Hampden).

TOPSFIELD (Essex South).

Baxter, C. P.
 Sanborn, Byron

TOWNSEND (Worcester North).

(See also: West Townsend.)
 †Chandler, L. G.

TRURO (Barnstable).

Turner's Falls (MONTAGUE).

Kemp, H. M.
 Leary, P. F.
 McGillicuddy, R. A.
 Messer, C. C.

TYNGBOROUGH (Middlesex North).

Lambert, F. De F.

TYRINGHAM (Berkshire).

UPTON (Worcester).

UXBRIDGE (Worcester).

Griswold, M. L.
 Johnson, W. L.

Waban (BROOKLINE).

Bessey, E. E.

Waban (NEWTON).

McGee, F. M.

WAKEFIELD (Middlesex East).

Crosby, L. M.
 Dutton, Charles
 Dutton, Richard
 Elder, F. O.
 Heath, J. W.
 †Jordan, Charles
 O'Leary, J. A.
 Sopher, C. L.
 Tyzzer, E. E.
 Watts, J. P.
 Woodbury, F. T.

WALES (Hampden).

WALPOLE (Norfolk).

(See also: East Walpole.)
 Fuller, F. H.
 Proctor, T. M.

WALTHAM (Middlesex South).

Bell, Conrad
 Collins, Richard
 Courtney, T. J.
 Cousins, N. W.
 Dascombe, O. L.
 Dennen, R. W.

WALTHAM (continued).

Desmond, C. F.
 Fournin, E. R. P.
 Fuller, C. B.
 Hinchey, Richard
 Holbrook, Bradbury
 Hoyt, W. S.
 Jarvis, W. F.
 Lewis, J. P.
 MacDonald, F. L.
 McCormick, C. J.
 Mosher, M. J.
 Stiles, F. M.
 Taylor, R. A.
 Willis, C. A.
 Wood, H. A.
 Worcester, Alfred

WARE (Hampshire).

†Blodgett, A. G.
 Gafney, H. D.
 Miner, W. W.
 Pearson, M. W.
 Ryan, D. M.

WAREHAM (Bristol South).

Morse, C. E.

WARREN (Worcester).

DeLand, C. A.
 Phelps, A. W.

WARWICK (Franklin).

Goldsbury, P. W.

WASHINGTON (Berkshire).

WATERTOWN (Middlesex South).

Chase, C. O.
 Creely, O. S.
 †Davenport, B. F.
 Higginbotham, F. A.
 Kelley, E. J.
 Robie, A. H. P.

Waverley (BELMONT).

Abbot, E. S.
 Clark, L. B.
 Fernald, W. E.
 Flett, P. McN.
 Hoch, T. A.
 Hollings, C. B.
 Packard, F. H.
 Russell, F. J.
 Tuttle, G. T.
 Wallace, A. M.
 Whitney, R. L.
 Woodill, E. E.

WAYLAND (Middlesex South).

WEBSTER (Worcester).

Bragg, L. R.
 G  n  reux, J. O.
 Hart, G. F.
 Littlefield, G. C.
 Roy, J. N.
 Thompson, J. J.

WELLESLEY (Norfolk)

(See also: Wellesley Hills.)

Anthony, G. C.
 Bancroft, E. A.
 Hatch, Royal
 Proctor, F. I.
 Raymond, K. P.
 †Stone, M. C.
 White, L. E.

Wellesley Hills (WELLESLEY).

Cleveland, H. H.

Wellesley Hills (continued).

Greenwood, Allen
 †Hazelton, I. H.
 Hewins, P. W.
 Jones, G. N.
 †Macdonald, W. L.
 Schofield, O. L.
 Stanwood, F. A.

WELFLEET (Barnstable).

Bell, C. J.

WENDELL (Franklin).

West Acton (ACTON).

Staples, Hall

WESTBOROUGH (Worcester).

Ayer, T. H.
 Cilley, D. P.
 Clark, A. U. F.
 Knight, C. S.
 Mahoney, W. F.
 Newton, R. S.

WEST BOYLSTON (Worcester).

WEST BRIDGEWATER (Plymouth).

WEST BROOKFIELD (Worcester).

Cowles, F. W.

West Dennis (DENNIS).

Osborne, E. S.

West Falmouth (FALMOUTH).

†Cutter, Ephraim

WESTFIELD (Hampden).

Atwater, J. B.
 Brace, G. W.
 Chadwick, H. D.
 Chisholm, M. D.
 Clark, F. T.
 Davis, F. D.
 Douglas, A. J.
 Dutton, J. M.
 Janes, G. H.
 Maroney, P. J.
 Noble, A. F.
 Smith, E. S.

WESTFORD (Middlesex North).

Sherman, W. H.
 Wells, O. V.

West Gardner (GARDNER).

Donnelly, J. B.

WESTHAMPTON (Hampshire).

West Harwich (HARWICH).

Nickerson, J. P.

West Medford (MEDFORD).

Bean, C. F. K.
 Drake, R. A.
 †Wight, D. W.
 Wilkins, S. H.

West Medway (MEDWAY).

†Bemis, C. A.
 Quint, N. P.

WESTMINSTER (Worcester North).

Kelley, C. M.

WEST NEWBURY (Essex North).

†Warren, Orin

West Newton (NEWTON).

Atkinson, L. D. R.

West Newton (continued).

Chandler, H. B.
 Fisher, I. J.
 Jack, L. H.
 Knowles, W. F.
 Lowe, F. M.
 Macomber, Donald
 Nielsen, E. B.
 Paine, N. E.
 Sherman, F. M.
 Wells, D. W.

WESTON (Middlesex South).

Orr, S. S.
 Van N  ys, Fresenius
 Worthen, C. F.

WESTPORT (Bristol South).

Burt, E. W.

West Quincy (QUINCY).

Ash, J. H.
 Dion, T. J.

West Roxbury (Roxbury)
(BOSTON).

Gorham, G. H.
 Hamilton, B. E.
 Howell, W. W.
 Jillson, F. C.
 Knight, C. L.
 Knudson, M. M.
 Lougee, J. L.
 Ordway, Thomas
 Reagh, A. L.
 Shadman, A. J.
 Stevens, H. B.
 Stevens, S. E.
 Tenney, J. A.
 Watters, W. H.

West Somerville (SOMERVILLE).

Ayres, H. W.
 Blake, A. H.
 Bond, W. L.
 Bryant, G. W.
 Cholerton, Herbert
 Gillis, J. E.
 Hoole, J. E.
 Liverpool, C. H.
 McLean, J. A.
 Mahoney, G. C.
 †Makechnie, H. P.
 Miles, G. A.
 Osgood, G. E.
 Pillsbury, E. D.
 Pote, L. H.
 Richardson, C. A. C.
 Roderick, C. E.
 Ruston, W. D.
 Sylvester, N. R.
 Wagner, E. S.
 Whitcheer, B. R.

WEST SPRINGFIELD (Hampden).

(See also: Mittineague.)
 Bostick, W. J.
 Corcoran, G. B.

WEST STOCKBRIDGE (Berkshire).

WEST TISBURY (Bristol South).

West Townsend (TOWNSEND).

Ely, R. S.

WESTWOOD (Norfolk).

WEYMOUTH (Norfolk South).

(See also: East, North and South
 Weymouth.)
 Pease, L. W.

WHATELY (Franklin).**Whitinsville (NORTHBRIDGE).**

Balmer, W. E.
Barry, E. W.
Harriman, C. H.

WHITMAN (Plymouth).

Beaulieu, E. J.
†Copeland, H. F.
Dyer, E. A.
Hanley, F. J.
Lovell, C. E.
MacKeen, A. A.
Pulsifer, W. H.
Rood, A. D.

WILBRAHAM (Hampden).

(See also: North Wilbraham.)

WILLIAMSBURG (Hampshire).

(See also: Haydenville.)
Hayes, J. G.

WILLIAMSTOWN (Berkshire).

(See also: Blackinton.)
Adrian, Vanderpoel
Howard, F. H.
†Mather, E. E.

Willimansett (CHICOPEE).

Mead, F. A.

WILMINGTON (Middlesex East).

Buzzell, D. T.
Dodge, G. F.

VINCENDON (Worcester North).

Bush, J. S. F.
Henry, J. G.
Holzer, W. F.
Kenney, W. C.
Pelletier, A. G.
†Russell, F. W.
Sullivan, M. G.

VINCHESTER (Middlesex East).

Allen, C. J.
Ash, J. E.
Brown, A. L.
Cummings, M. A.
Cutter, I. T.
Dennett, D. C.
Gale, H. A.
Hammond, Philip
Hersey, H. W.
†Hildreth, J. L.
Lowell, W. H.
McCarthy, C. F.
Mead, G. N. P.
Ordway, C. E.
Putnam, Ralph
Tozier, C. H.

WINDSOR (Berkshire).**WINTHROP (Suffolk).**

Adams, L. D.
Coates, E. A.
French, G. H.
Johnson, O. E.
Metcalf, E. H.
Morse, F. H.
Parker, R. B.
Soule, H. J.
White, L. N.

WOBURN (Middlesex East).

Bixby, J. P.
Blake, H. G.

WOBURN (continued).

Carroll, J. P.
Caulfield, T. E.
Chalmers, Robert
Conlin, R. E.
Hutchings, J. H.
Keleher, W. H.
Kelley, S. W.
Lane, A. C.
Lane, C. G.
McCormick, J. J.
O'Brien, C. T.
Stewart, V. C.
West, F. O.

Wollaston (QUINCY).

Adams, C. S.
Curtis, W. G.
Merritt, L. A.

WORCESTER (Worcester).

Adamian, P. A.
Adams, G. E.
Albee, G. M.
Andrews, B. F.
Atwood, A. W.
Auger, L. L.
Baff, Max
Baker, F. H.
Barnes, J. A.
Barrell, M. E.
Beal, H. W.
Bemis, J. M.
Bergin, S. A.
Berry, Gordon
†Berry, J. C.
Bieberbach, W. D.
Bigelow, E. B.
Bowers, G. F. H.
Boyden, A. H.
Brennan, J. J.
Brown, G. C.
Bryant, Frederick
Burley, B. T.
Butterfield, G. K.
Byrne, C. J.
Cahill, J. W.
Carney, P. J.
Cassels, L. R.
Chamberlin, H. A.
Charteris, M. A.
Clark, W. I., Jr.
Clement, M. W.
Colberg, P. A.
Cook, P. H.
Cronin, H. W.
Cronin, T. J.
Cross, A. E.
Cummings, J. J.
Curran, J. F.
Daudelin, S. A.
Deering, G. E.
Delahanty, W. J.
Denning, W. E.
Disbrow, E. P.
Dix, G. A.
Donoghue, J. J.
Donohue, J. J.
Drew, C. A.
Duggan, J. T.
Emerson, B. K.
Emery, G. E.
Estabrook, C. T.
Everett, O. H.
Fallon, M. F.
Farnham, J. M. W.
Fay, F. G.
Fitzgerald, C. P.
Flynn, J. J.
Fogerty, W. C.
Foley, T. J.

WORCESTER (continued).

Foskett, G. M.
Fox, M. B.
Gage, Homer
George, F. W.
Getchell, A. C.
Gillfillan, D. R.
Gilman, W. R.
Greene, R. W.
Gwynne, S. C.
Hagerty, H. J.
Haigh, G. W.
Halloran, M. J.
Harkins, J. F.
Harrower, David
Hartnett, J. H.
Haviland, N. C. B.
Haviland, W. C.
Hill, G. H.
Holmes, M. S.
Horsman, H. L.
Hunt, E. L.
Jackson, A. W.
†Jordan, G. A.
Kenney, T. F.
Kenyon, H. J.
Kinnicutt, Roger
Lemaire, W. W.
Lincoln, G. C.
Lincoln, Merrick
Lindsay, J. I.
Lovell, D. B.
Lussier, C. A.
Lynch, W. F.
McClusky, H. L.
MacFadyen, J. A.
MacKerrow, H. G.
Magune, F. L.
†Marble, J. O.
Marsh, A. W.
Marston, C. H.
Mason, B. H.
Mathews, R. F.
McDonald, J. W.
McEvoy, T. E.
McGillicuddy, J. T.
McIvor, G. A.
McKibben, W. W.
McKoan, J. W.
McSheehy, T. C.
Miller, L. C.
Moore, J. F.
Murphy, A. F.
Nightingale, James
O'Callaghan, M. V.
O'Connell, A. E.
O'Connor, D. F.
O'Connor, J. F.
O'Connor, J. W.
O'Day, G. F.
O'Meara, M. J.
Osborne, C. A.
Overlock, M. G.
Parker, E. L.
Peterson, H. O.
Phelps, O. D.
Pofcher, E. H.
Power, G. A.
†Quinby, H. M.
Randall, C. W.
Rice, J. E.
Robinson, Solomon
Rochette, E. C.
Rockwell, A. E. P.
Rose, W. H.
Scribner, E. V.
Seelye, W. C.
Shannahan, R. J.
Shattuck, A. M.
Shaw, T. B.
Shea, P. O.

WORCESTER (continued).

Simmons, E. B.
Simmons, H. C.
Smith, Myrtle
Sparrow, G. A.
Stapleton, R. H.
Stevens, C. B.
Stevens, W. C.
Stick, H. L.
Stowell, F. E.
Swan, R. W.
Swasey, Edward
Taylor, James, Jr.
Tripp, G. A.

WORCESTER (continued).

Trowbridge, E. H.
Ward, G. O.
Ward, R. J.
Watkins, R. P.
Wetherbee, L. E.
Wheeler, C. D.
Wheeler, Leonard
Whitaker, C. W.
White, Levi
Woodward, L. F.
Woodward, S. B.
†Workman, W. H.
Yoosuf, A. K.

WORTHINGTON (Hampshire).

Lyman, W. R.

WRENTHAM (Norfolk).

Faxon, E. W.
Ferguson, E. H.
Perkins, F. H.
Wallace, G. L.

YARMOUTH (Barnstable).

(See also: Yarmouth Port.)

***Yarmouth Port* (YARMOUTH).**

Sears, S. H.

NON-RESIDENTS, BY STATES AND COUNTRIES

1914

CALIFORNIA.

Boyd, S. G., San Francisco.
 †Crocker, S. E., Los Angeles.
 Dwight, H. L., San Diego.
 Goss, F. W., Sacramento.
 Johnson, W. S., Los Angeles.
 Knowlton, H. E., National City.
 Lucas, W. P., San Francisco.
 MacDonald, A. E., Ontario.
 Mansur, L. W., Los Angeles.
 Parker, A. M., Santa Maria.
 Williams, C. C., Pasadena.

CONNECTICUT.

†Bragdon, G. A., Middletown.
 Browne, W. T., Norwich.
 LaMoire, C. T. E., Lakeville.
 Loewe, L. J., Haddam.
 Lord, S. A., Cromwell.
 †Page, C. W., Hartford.

FLORIDA.

Vaughan, J. H., Tampa.

GEORGIA.

Comey, P. P., Augusta.

ILLINOIS.

Couch, M. C., Chicago.

INDIANA.

Bliss, G. S., Fort Wayne.
 Woodbury, H. E., Indianapolis.

IOWA.

Grover, A. L., Iowa City.

MAINE.

Allen, S. W., York Harbor.
 Averill, G. G., Waterville.
 Cummings, D. F., Cherryfield.
 Eastman, T. J., South Berwick.
 Hall, W. D., Port Clyde.
 Hedin, C. J., West Pownal.
 Hills, F. L., Bangor.
 Jackson, F. W., Jefferson.
 Reynolds, R. L., Waterville.
 Richardson, H. K., Bradford.
 Stevens, H. E. E., Lewiston.
 Swift, H. M., Portland.
 Vosburgh, S. E., Augusta.
 Williams, H. E., Mount Vernon.

MICHIGAN.

Hendricks, H. V., Traverse City.
 Noble, A. I., Kalamazoo.

MINNESOTA.

†Hayes, C. C., Fairbault.
 McGrath, B. F., Rochester.
 Marckley, W. J., Minneapolis.
 Tomkies, J. S., Rochester.

MISSOURI.

Murphy, F. T., St. Louis.
 Tobey, E. N., St. Louis.

NEW HAMPSHIRE.

Allen, Bradford, Nashua.
 †Balcom, G. F., Swanzey.
 †Blood, R. A., George's Mills.
 Bowles, G. H., Plymouth.
 Bradford, H. W., Wolfborough.
 Brownrigg, A. E., Nashua.
 Cain, W. G., Nashua.
 Faulkner, H. K., Keene.
 Gile, J. M., Hanover.
 Graves, R. J., Concord.

NEW HAMPSHIRE (continued).

Holmes, J. F., Manchester.
 Hubbard, O. H., Gilsum.
 Kean, M. E., Manchester.
 Laton, G. P., Salem.
 Libby, M. G., Newport.
 MacMillan, A. L., Jr., Concord.
 Pike, F. W., Portsmouth.
 Powell, M. A., Laconia.
 Proctor, J. D., Keene.
 Smith, C. S., Manchester.
 Stowell, E. C., Dublin.
 Stowell, S. R., Dublin.
 Taft, A. A., Keene.
 Thompson, W. A., Manchester.
 Thorpe, B. D., Newport.
 Tower, E. A., Derry.
 Wallace, A. S., Nashua.
 Wilkins, G. C., Manchester.

NEW JERSEY.

Christiernin, C. L., East Orange.
 Dunham, H. B., Glen Gardner.
 Ferguson, R. H., East Orange.
 Hahn, A. J., Pattenburg.

NEW YORK.

Breed, N. P., Douglaston, L. I.
 Bryant, W. S., New York.
 Cockett, M. S., New York.
 Coolidge, J. N., New York.
 Fisher, C. I., New York.
 Fisk, A. L., New York.
 Holden, E. M., New York.
 Johnson, A. E., Jr., New York.
 Lighton, F. M., New York.
 MacKay, W. H., Poughkeepsie.
 McCarthy, T. F., Jamaica, L. I.
 McPherson, Ross, New York.
 Monty, A. H., Brooklyn.
 Ogden, J. B., New York.
 Overlander, J. L., New York.
 Pratt, M. R., Syracuse.
 Richards, C. M., New York.
 Sanborn, F. R., New York.
 Shoninger, L. S., New York.
 Smith, S. B., New York.
 Tibbetts, J. T., Mineola.
 Wilder, R. S., Briarcliff Manor.

NORTH CAROLINA.

Achorn, J. W., Pine Bluff.
 Champion, M. E., Greenville.
 Packard, G. H., White Rock.

OHIO.

Schwab, Emanuel, Cincinnati.
 Wells, A. T., Canton.

OREGON.

Whiteside, G. S., Portland.

PENNSYLVANIA.

Finlayson, A. D., Warren.
 Fuller, D. H., Philadelphia.
 Law, K. H., Erie.
 McRae, A. J., Wilkes-Barre.
 Mitchell, H. W., Warren.
 Mitchell, M. P., Warren.
 Simonds, O. F., Philadelphia.
 Wheeler, L. A., Wernersville.

RHODE ISLAND.

Blake, LeGrande, Riverside.
 Borden, G. E., Adamsville.
 Darrah, R. E., Newport.
 Davenport, J. H., Providence.
 Gerber, Isaac, Providence.

RHODE ISLAND (continued).

Hamblet, M. L., Wallum.
 Hayes, A. E., Providence.
 Holt, C. H., Pawtucket.
 Keefe, P. H., Providence.
 MacLeod, N. M., Newport.
 Means, P. C., Apponaug.
 Messinger, H. C., Providence.
 Munro, W. L., Providence.
 Murphy, E. V., Newport.
 O'Meara, J. G., Providence.
 Pettingill, O. S., Wallum Lake.
 Sullivan, J. E., Providence.
 Turner, C. S., Providence.

SOUTH CAROLINA.

Laws, S. G., Spartanburg.

TEXAS.

Slater, E. M., Denton.

VERMONT.

Bush, A. D., Burlington.
 Higgins, J. H., Union Village.
 Marshall, A. T., Chelsea.

WASHINGTON.

Clarke, T. G., Langley.

WEST VIRGINIA.

Boland, L. F., Welch.

WYOMING.

Berry, L. M., Junction.

DISTRICT OF COLUMBIA.

Murphy, J. P. H., Washington.

PANAMA CANAL ZONE.

Bates, L. B., Ancon.

U. S. ARMY.

Bauer, L. H.
 Newton, R. W.
 Wood, Leonard.

U. S. NAVY.

Jenness, B. F.
 Moran, C. L.

FOREIGN.

Calkin, B. H., Stellarton, N. S.
 Clark, H. A., Port Limon, Costa Rica.
 Cumston, C. G., Geneva, Switzerland.
 Hagen-Bürger, G. L., Havana, Cuba.
 Hanley, J. J., Motherwell, Scotland.
 MacPherson, W. E., St. Marc, Haiti.
 †Prince, J. P., Durban, South Africa.
 Storrs, H. R., Vancouver, B. C.
 Street, L. A. B., Shanghai, China.
 Townsend, David, River Glade, N. B.

ADDRESS UNKNOWN.

Albert, Lionel Louis.
 Baker, Osmyn.
 Brown, Melvin James.
 †Brown, Marshall Lebanon.
 Canfield, William Chase.
 Cary, Foster Harrington.
 Craig, Daniel Hiram.
 Ermentrout, Sallie Justina.
 Hinds, Robert Watson.
 McKelvey, Alexander Dunbar.
 Metcalf, Julia Tracy.
 O'Donnell, George Thomas.
 Phipps, Walter Andros.
 Sears, Julia Seaton.
 Smith, Frank Simpson.
 Tracy, Thomas Henry.
 Tryon, Geneva.

NUMERICAL SUMMARY OF FELLOWS BY DISTRICTS

GIVING CITIES AND TOWNS

[Names of Cities are printed in Capitals.]

1914.

BARNSTABLE DISTRICT.

Established 28 May, 1840.

Barnstable	8	Orleans	1
Bourne	2	Provincetown	3
Brewster	1	Sandwich	3
Chatham	1	Truro	
Dennis	3	Wellfleet	1
Eastham		Yarmouth	1
Falmouth	4		
Harwich	5	Total	33
Mashpee			

Active 31. Retired 2.

BERKSHIRE DISTRICT.

Established 7 Oct., 1807.

Adams	4	NORTH ADAMS	12
Alford		Otis	
Becket	1	Peru	
Cheshire		PITTSFIELD	43
Clarksburg		Richmond	
Dalton	3	Sandisfield	
Egremont		Savoy	
Florida		Sheffield	1
Great Barrington	6	Stockbridge	4
Hancock		Tyringham	
Hinsdale		Washington	
Lanesborough	1	West Stockbridge	
Lee	2	Williamstown	4
Lenox	2	Windsor	
Monterey			
Mount Washington		Total	83
New Marlborough			

Active 79. Retired 4.

BRISTOL NORTH DISTRICT.

Established 31 May, 1849.

Attleborough	12	Norton	1
Dighton	1	Raynham	
Easton	4	Rehoboth	
Freetown	1	Seekonk	
Lakeville*		TAUNTON	32
Mansfield	5		
Middleborough*	4	Total	65
North Attleborough	5		

Active 59. Retired 6.

BRISTOL SOUTH DISTRICT.

Established 3 April, 1839.

Acushnet		NEW BEDFORD	61
Chilmark		Oak Bluffs	
Dartmouth	2	Rochester	
Edgartown	1	Somerset*	
Fairhaven	2	Swansea*	1
FALL RIVER	56	Tisbury	2
Gay Head		Wareham	1
Gosnold		Westport	1
Marlon	2	West Tisbury	
Mattapoisett	2		
Nantucket	1	Total	132

Active 128. Retired 4.

ESSEX NORTH DISTRICT.

Established 6 Oct., 1841.

Amesbury	10	Newbury	13
Andover	6	NEWBURYPORT	2
Boxford		North Andover	1
Georgetown	2	Rowley	1
Groveland	1	Salisbury	1
HAVERHILL	52	West Newbury	1
LAWRENCE	65		
Merrimac	1	Total	158
Methuen	4		

Active 153. Retired 5.

ESSEX SOUTH DISTRICT.

Established 7 June, 1804.

BEVERLY	16	Nahant	1
Danvers	6	Peabody	10
Essex	1	Rockport	3
GLOUCESTER	20	SALEM	34
Hamilton	3	Saugus	6
Ipswich	3	Swampscott	4
LYNN	94	Topsfield	2
Lynnfield	1	Wenham	
Manchester	2		
Marblehead	5	Total	212
Middleton	1		

Active 204. Retired 8.

FRANKLIN DISTRICT.

Established 27 May, 1851.

Ashfield	1	Monroe	
Barnardston	2	Montague	5
Buckland		New Salem	
Charlemont		Northfield	3
Colrain	2	Orange	3
Conway		Rowe	
Deerfield	3	Shelburne	3
Erving	1	Shutesbury	
Gill		Sunderland	1
Greenfield	12	Warwick	1
Hawley		Wendell	
Heath		Whateley	
Leverett			
Leyden		Total	37

Active 36. Retired 1.

HAMPDEN DISTRICT.

Established 28 May, 1840.

Agawam	1	Montgomery	
Blandford		Palmer	9
Brimfield	1	Russell	
Chester	1	Southwick	
CHICOPEE	8	SPRINGFIELD	139
Granville	1	Tolland	
Hampden		Wales	
Holland		Westfield	12
HOLYOKE	45	West Springfield	3
Longmeadow	1	Wilbraham	1
Ludlow	1		
Monson	4	Total	227

Active 219. Retired 8.

* By vote of the Council, June 7, 1910, Somerset and Swansea were transferred to Bristol South, and Lakeville and Middleborough to Bristol North.

HAMPSHIRE DISTRICT.

Established 5 Oct., 1831.

Amherst	8	NORTHAMPTON	26
Belchertown	1	Pelham	
Chesterfield	1	Plainfield	
Ummington	2	Prescott	
Southampton	6	Southampton	
Medfield	1	South Hadley	6
Woburn		Ware	5
Woburn		Westhampton	
Greenwich		Williamsburg	3
Medley	2	Worthington	1
Medfield	3		
Huntington	4	Total	69
Medfield			

Active 64. Retired 5.

MIDDLESEX EAST DISTRICT.

Established 2 Oct., 1850.

Burlington		Wilmington	2
MELROSE	17	Winchester	16
North Reading	3	WOBURN	15
Reading	7		
Stoneham	5	Total	76
Wakefield	11		

Active 73. Retired 3.

MIDDLESEX NORTH DISTRICT.

Established 2 Oct., 1844.

Acton	1	Groton	1
Bedford	2	Littleton	
Billerica	2	LOWELL	92
Boxborough		Pepperell	2
Carlisle		Tewksbury	10
Chelmsford	3	Tyngsborough	1
Dracut	1	Westford	2
Dunstable			
		Total	117

Active 108. Retired 9.

MIDDLESEX SOUTH DISTRICT.

Established 2 Oct., 1850.

Arlington	15	MARLBOROUGH	8
Ashland	1	Maynard	1
Belmont	14	MEDFORD	19
Brighton*	22	Natick	8
CAMBRIDGE	125	NEWTON	65
Charlestown*	21	Sherborn	1
Concord	6	SOMERVILLE	69
EVERETT	16	Stow	
Framingham	18	Sudbury	1
Holliston	2	WALTHAM	22
Hopkinton	1	Watertown	6
Hudson	2	Wayland	
Lexington	7	Weston	3
Lincoln	3		
MALDEN	39	Total	495

Active 474. Retired 21.

NOFOLK DISTRICT.

Established 2 Oct., 1850.

Bellingham		Milton	10
Brookline	101	Needham	8
Canton	3	Norfolk	
Dedham	7	Norwood	8
Dorchester*	110	Roslindale*	12
Dover	2	Roxbury*	110
Foxborough	6	Sharon	3
Franklin	2	Walpole	3
Hyde Park*	9	Wellesley	15
Jamaica Plain*	42	West Roxbury*	14
Mattapan*	15	Wrentham	4
Medfield	1		
Medway	3	Total	488
Millis			

Active 470. Retired 18.

NORFOLK SOUTH DISTRICT.

Established 1 Oct., 1884.

Braintree	8	QUINCY	25
Cohasset	4	Randolph	3
Hingham	5	Weymouth	9
Holbrook	3		
Hull	2	Total	59

Active 59.

PLYMOUTH DISTRICT.

Established 2 Oct., 1850.

Abington	3	Norwell	
Avon	2	Pembroke	1
Bridgewater	8	Plymouth	8
BROCKTON	50	Plympton	
Carver		Rockland	4
Duxbury	3	Scituate	2
East Bridgewater		Stoughton	2
Halifax		West Bridgewater	
Hanover	2	Whitman	8
Hanson			
Kingston	1	Total	95
Marshfield	1		

Active 91. Retired 4.

SUFFOLK DISTRICT.

Established 7 June, 1804.

BOSTON*	639	Winthrop	9
CHELSEA	7		
Revere	9	Total	664

Active 643. Retired 21.

* A part of Boston.

* Except Brighton and Charlestown, which are in the Middlesex South District, and Dorchester, Hyde Park, Jamaica Plain, Mattapan, Roslindale, Roxbury, West Roxbury, and that part of Boston lying south of a line beginning at Dorchester Bay opposite end of Preble Street, and running in a general north-easterly direction through the middle of Preble and Swett (now Southampton) Streets to Northampton Street, then by the middle of Northampton Street to Washington Street, then by the middle of Washington Street to Camden Street, then by the middle of Camden and Gainsborough Streets to Huntington Avenue, then by the middle of Huntington Avenue to the Huntington Avenue entrance of the Back Bay Park, then across the Park westerly to the waterway known as Muddy Brook, then by Muddy Brook to St. Mary's Street, then by the middle of St. Mary's Street to the Charles River, which are in the Norfolk District.

WORCESTER DISTRICT.

Established 7 June, 1804.

Auburn	Northborough	2
Barre	Northbridge	3
Berlin	North Brookfield	1
Blackstone	Oakham	3
Bolton	Oxford	3
Boylston	Paxton	1
Brookfield	Princeton	1
Charlton	Rutland	3
Clinton	Shrewsbury	2
Dana	Southborough	6
Douglas	Southbridge	2
Dudley	Spencer	1
Grafton	Sterling	1
Hardwick	Sturbridge	1
Harvard	Sutton	1
Holden	Upton	2
Hopedale	Uxbridge	2
Hubbardston	Warren	6
Lancaster	Webster	6
Leicester	Westborough	6
Mendon	West Boylston	1
Milford	West Brookfield	1
Millbury	WORCESTER	168
New Braintree		
	Total	253

Active 245. Retired 8.

WORCESTER NORTH DISTRICT.

Established 25 May, 1858.

Ashburnham	2	Phillipston	1
Ashby	1	Royalston	5
Athol	3	Shirley ..	2
Ayer	3	Templeton	1
FITCHBURG	36	Townsend	7
Gardner	13	Westminster	80
Leominster	11	Winchendon	
Lunenburg	1		
Petersham		Total	

Active 51. Retired 5.

RECAPITULATION.

DISTRICT SOCIETIES.	RETIRED	ACTIVE	TOTAL
Barnstable.....	2	31	33
Berkshire.....	4	79	83
Bristol North.....	6	59	65
Bristol South.....	4	128	132
Essex North.....	5	153	158
Essex South.....	8	204	212
Franklin.....	1	36	37
Hampden.....	8	219	227
Hampshire.....	5	64	69
Middlesex East.....	3	73	76
Middlesex North.....	9	108	117
Middlesex South.....	21	474	495
Norfolk.....	18	470	488
Norfolk South.....		59	59
Plymouth.....	4	91	95
Suffolk.....	21	643	664
Worcester.....	8	245	253
Worcester North.....	5	81	86
Fellows resident in Massachusetts.....	132	3217	3349
Fellows resident in other States and Countries.....	7	150	157
	139	3367	3506
Fellows, addresses unknown.....	1	16	17
Whole number of Fellows in the Society, 1 Jan., 1915.	140	3383	3523

NOTICE TO FELLOWS OF THE SOCIETY.

THE BOSTON MEDICAL AND SURGICAL JOURNAL, the Official Organ of the Society, is issued weekly and sent only to those who have paid their assessments, and to such Honorary and Retired Fellows as may apply for them to the Librarian.

Fellows who fail to receive the Publications should notify the Librarian at once.

Fellows are requested to send prompt notice to the Librarian of changes of residence or office address or of errors noted in this Directory.

EDWIN H. BRIGHAM, M.D.,

Librarian.

8 The Fenway, Boston.

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Massachusetts Medical Society

SYMPOSIUM ON TUBERCULOUS CERVICAL ADENITIS.

COMBINED MEETING OF THE SECTIONS ON MEDICINE, SURGERY AND TUBERCULOSIS.

JUNE 10, 1914.

- I. Relation of the Tonsils, Adenoids and Other Throat Conditions to Tuberculous Cervical Adenitis. *By Geo. L. Richards, M.D., Fall River, Mass.*
- II. The Treatment of Tuberculous Cervical Adenitis. *By Henry D. Chadwick, M.D., Westfield, Mass.*
- III. The Surgical Treatment of Tuberculous Cervical Adenitis.* *By Charles A. Porter, M.D., Boston.*
- IV. The Treatment of Tuberculous Cervical Adenitis. *By John B. Hawes, 2d, M.D., Boston.*
- V. Tuberculosis From a Dentist's Viewpoint. *By George H. Wright, D.M.D., Boston.*

I.

RELATION OF THE TONSILS, ADENOIDS AND OTHER THROAT CONDITIONS TO TUBERCULOUS CERVICAL ADENITIS.

BY GEO. L. RICHARDS, M.D., FALL RIVER, MASS.

For the proper understanding of this subject a knowledge of the anatomy and of the relationship of the lymphatic drainage of the tonsils, the adenoid tissue and the pharyngeal region to the cervical lymphatics is necessary. Whereas considerable space is given to this subject in various

text-books of anatomy, most of it seems to be based on the original work of Sappey, which was done on children many years ago, and that of Poirier, Cuneo, Delamere and Most. It is stated in many monographs on the subject that the tonsils drain into the superficial and deep lymphatics, but I am unable to find any valid, anatomical statement for their drainage into the superficial lymphatics. The superficial lymphatics drain the areas of the anterior part of the mouth and tongue, and then pass into the deeper chain, while all that is posterior, including the entire pharynx, the post-nares, the upper pharynx, the tonsils and the base of the tongue, drain into the deep lymphatics of the jugular chain, of which there are two or three sets.

Briefly, this anatomy is as follows:—There are two principal retropharyngeal glands, one on each side of the median raphe, at the junction of the posterior and lateral surfaces of the pharynx, corresponding to the situation of the arch of the soft palate, with sometimes three or more additional lymph nodes on one side or the other. These glands correspond to the general situation of retropharyngeal abscesses, these being invariably found on one or the other side of the median line. They receive the lymph coming from the mucous membrane of the nasal fossae, and adjacent cavities, and drain into the upper glands of the internal jugular chain, passing behind the vessels and the nerves. The general lymphatic drainage of the pharynx ends either in the retropharyngeal glands or the internal jugular chain. The glands of this chain also receive the lymph from the internal group of the sternomastoid glands. The lymphatics from the tonsil appear to drain into the posterior lymph glands of the tongue, thence into two lateral trunks, thence passing down the lateral wall of the pharynx terminating in large glands of

* No paper received for publication.

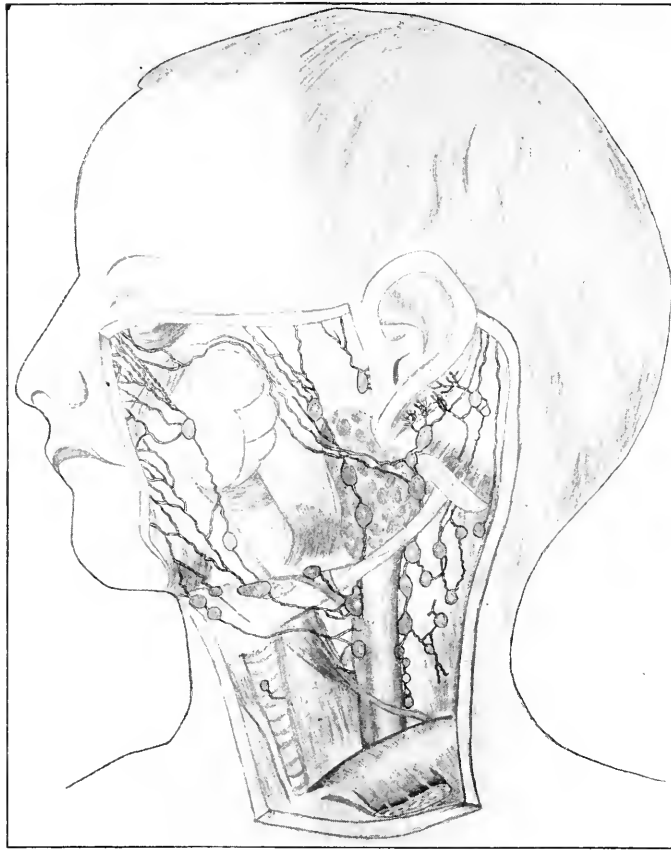


FIG. 1.—General scheme of the lymph-stream of the outer nose, the face and the side of the head, together with the lymphatic gland groups of the head and neck. (After Most.)

the internal jugular chain behind the posterior belly of the digastric. This is the principal meeting place of the neck lymphatics. A not inconsiderable number of the lymph vessels go directly from the posterior pharyngeal wall to the deep glands of the neck and the jugular region. The adenoid area drains into the posterior wall of the pharynx, which is the chief collecting point of the lymphatics of the pharynx both from the roof of the pharynx, and from the posterior and side walls, and from the Eustachian tube. The lymphatics of the larynx drain into the glands arranged along the internal jugular chain, the substerno mastoid glands being the principal terminus. The lymphatic glands of the lung form a rich network joining together up to the point of entrance of the lung where they become superficial. They pass through several pulmonary lymph glands forming by their union broncho mediastinal trunks. These course along the trachea to the lower portion of the neck, and finally open at the venous confluence or into the thoracic duct on the left, and on the right directly into the subclavian, or at the junction of the jugular and subclavian.

The tonsil itself develops as an ingrowth of endothelium from the second bronchial pouch. According to Gordon Wilson, in origin it is in

line with the thymus and the thyroid, and is not a pure lymphoid structure. It begins to develop about the fourth month of embryonic life, and matures about puberty. It probably has some protective function in the early years of life as the experimental work performed by G. H. Wright and many others has shown. The argument that because no deleterious results follow enucleation, the tonsil is of no value, and should be removed in every case, is not a good one, since its period of greatest functional activity is before puberty. Tubercular adenitis is usually a localized tubercular affection most frequent in childhood from the sixth to the fifteenth year, although it may occur in early infancy, and seems to have some relationship to diseased tonsils, adenoids and general pharyngeal disturbance. It has repeatedly been demonstrated by Wood and others that tubercle bacilli can be made to invade and pass through the faucial tonsil without producing tuberculosis of the tonsil itself. The same is probably true of other portions of the lymphoid area whose anatomy we have been considering. When we come to estimate the number of cases of tonsils which of themselves are actually diseased, we find the number varying from one or two per cent. up to ten, according to the experience

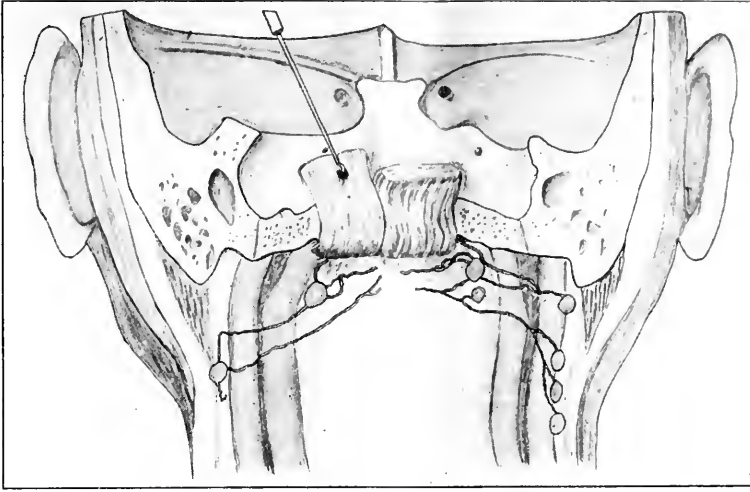


FIG. 2.—Lymph vessels and glands of the retropharyngeal space as seen posteriorly. (After Most.)

of the individual observer. Tubercle bacilli have been extremely hard to demonstrate in the tonsil, hence the question of the presence or absence of tubercular disease has had to depend principally upon histologic findings. A sufficient number of observations have been made to demonstrate that tubercular adenitis is not necessarily accompanied by a tubercular tonsil, but seems to have its source with the tonsils as the port of entrance of the trouble even though they themselves may not have been diseased. In one instance I removed the adenoids in a girl of twelve, some years later she had a severe attack of cervical adenitis, with broken down glands, which on removal, were found to be tubercular. The tonsils were removed at this time, and the individual has been perfectly well ever

since. She is a strong and robust woman, and never had any cough. She married, the adenoids were removed from her child, and then this child developed adenitis with broken down glands, but without signs of any general tuberculosis. The glands were removed, and later the tonsils also, with the result that the child is now in perfect health, more than a year having elapsed since the last operation. I do not think there was any direct heredity in this instance, but in each case the infection occurred through the faucial tonsils. Certain it is that after removal of the faucial tonsil in many children previously suffering, to a greater or less degree, from enlarged cervical glands, these glands disappear and are no longer palpable to the finger. In a recent review clinic, held to determine the

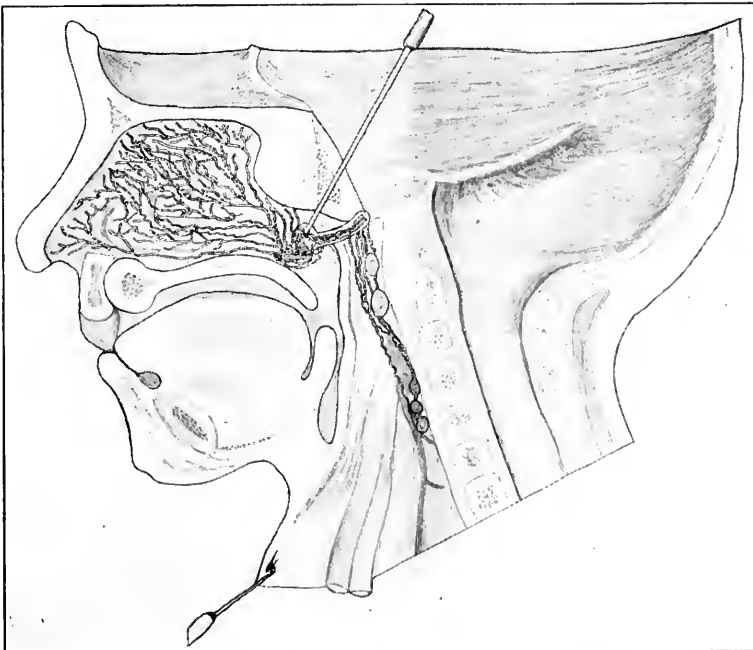


FIG. 3.—Lymph channel of the interior of the nose and the Eustachian tube. (After Most.)

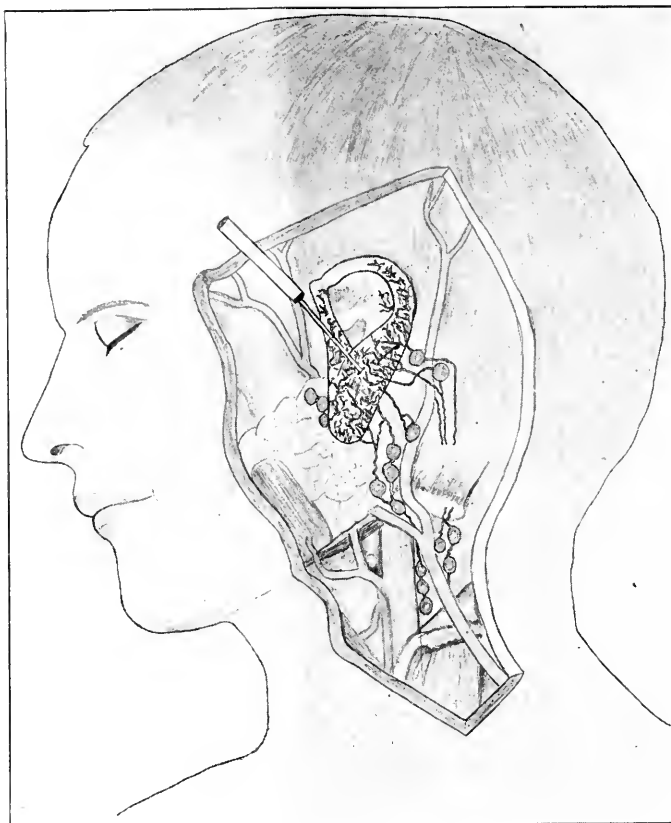


FIG. 4.—Lymph vessels of the external ear and the glands of the same region. In front of the ear are the two anterior auricular glands in the niche between the parotid and the anterior wall of the external canal. Behind the ear are the mastoid glands and below the ear five infra-auricular glands. The deep neck glands along the internal jugular are also shown. (After Most.)

final results, in a series of cases operated on for tonsils and adenoids, something over 100 in number, it was found that the cervical lymph glands, were, as a rule, felt not at all, or to only a slight degree. Many of these children did have enlarged lymph glands at the time of operation. Although it is impossible to determine in the individual case whether the tonsil is the source of the adenitis or whether its removal will cause a disappearance of the enlarged glands, I am inclined as the result of my own experience and that of others, to recommend that in all cases of cervical adenitis the tonsil be removed as the first procedure. If the glands are broken down, and an operation upon them has to be performed, then the tonsil should be removed at the same time. That the removal of the tonsil removes all source of possible danger of infection of the cervical lymph glands is not claimed, since anatomical studies already referred to have shown that the entire area of the middle ear, Eustachian tube, superior, posterior and lateral pharyngeal wall, the tonsils, base of the tongue, and posterior nares all have their lymphatic drainage area into the cervical lymph glands. The tonsil, however, being large, and situated in

the back of the mouth where it is very subject to infection and to pressure during the act of eating and swallowing, is probably the greatest offender. As the tonsil is such a possible portal of infection, and as its removal seems to be followed by no deleterious effects upon the organism, and as it is very likely to be a source of entrance for the infection of rheumatism, I should advise its removal in all cases of cervical adenitis, and in all children whose parents give a history of having had cervical adenitis. At the same time, one cannot say with positiveness that the removal of the tonsil will either cure or prevent cervical adenitis. Here, as in other departments of medicine, each case must be judged on its own merits. One can always reassure the parents of such children that in all probability the cervical adenitis is not an accompaniment of a general pulmonary tubercular process, since the lymph glands of the lung drain directly into the blood stream, the drainage from the two areas having no direct meeting-place, unless near the point of final entrance into the general blood stream. It, of course, cannot be denied that there is some possibility of general infection from the entrance into the general blood stream of bacilli from the infected

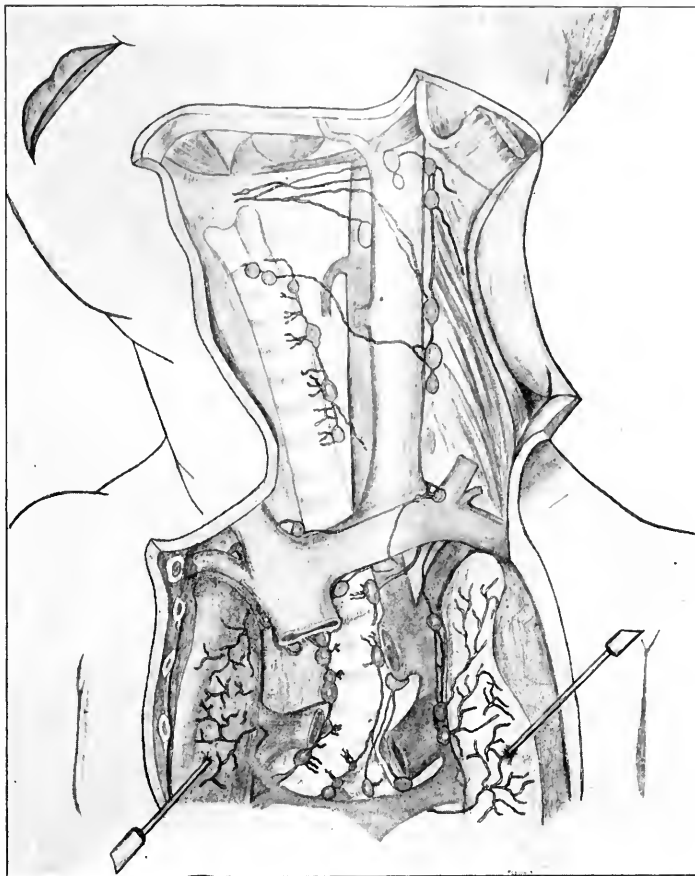


FIG. 5.—The lymph channels and glands in the region of the larynx, trachea and tracheobronchial glands, with their course from the trachea and the lungs. (After Most.)

cervical lymph glands. Practically, however, the process is usually limited to the area involved. It is not probable that all enlarged cervical lymph glands are tubercular, presumably about 80% of them are.

[I have to acknowledge in the preparation of this article my special indebtedness to the volume on the "Lymphatics" of Poirier, Cuneo, and Delamere, and to the articles entitled "Der Lymphgefäßapparat des Kopfes und des Halses," by Professor August Most, published in Vol. I "Handbuch der speziellen Chirurgie des Ohres und der oberen Luftwege," edited by Katz, Preysing and Blumenfeld, from which article the illustrations here presented have been redrawn.]

II.

TREATMENT OF TUBERCULOUS CERVICAL ADENITIS.

BY HENRY D. CHADWICK, M.D., WESTFIELD, MASS.

Superintendent, Westfield State Sanatorium.

IN March, 1910, a young woman 23 years of age, was transferred from the Massachusetts General Hospital to the Westfield State Sanatorium. One of the assistant resident physicians

signed the application blank on which he made this note,—

"Tuberculous cervical adenitis; operation not advisable. Signs of tuberculosis present at right apex."

Briefly the history of the case was as follows:—

The glands of the left cervical region began to enlarge four years ago. Those of the right side two years later. Recently she noticed considerable loss of strength and her weight was fourteen pounds below normal.

Physical examination showed that the anterior, posterior and sub-maxillary groups of glands were all involved. The swelling was so extensive that the neck had lost all its natural contour.

While at the hospital a small gland was excised for examination and a pathologist reported that it was tuberculous.

There was slight consolidation of the right apex, without signs of active disease.

For the first week following her admission, her temperature varied from 100 to 103, and then gradually declined until it reached normal in about six weeks. During this time there had been little decrease in the size of the enlarged glands. After her temperature had been normal

for about a month tuberculin treatment was commenced. The initial amount given was one millionth of a milligram. The dosage was cautiously increased up to a maximum of ten milligrams. The swollen glands steadily reduced in size during the treatment.

She was discharged as a patient in November, 1910. At that time her neck had a normal appearance and only a few of what had been the largest glands could be felt. Her general condition was very good, and she was given work as a ward maid. We continued the tuberculin several months longer, while she was thus employed.

The results in this case were so good that all subsequent patients, as they were admitted, were given tuberculin treatment if they had enlarged glands and their pulmonary disease was not so active as to contraindicate its use. I have had but a comparatively few adults with tuberculous adenitis who were suitable cases for this treatment. Each one has responded satisfactorily to tuberculin, except one out-patient. This woman came for treatment twice a week and continued her usual occupation. Although she came faithfully for the injections until a dose of ten milligrams was reached, there was no apparent decrease in the size of the glands. I am of the opinion that had this patient been under sanatorium conditions while being treated, a satisfactory result might have been obtained.

One other patient had cervical adenitis so extensively that it made operation inadvisable. She had been referred to the sanatorium from the out-patient department of the Massachusetts General Hospital. This girl had been at the sanatorium two different periods for a few months each, and left against advice each time. Tuberculin was given regularly while at the sanatorium, and continued at irregular intervals at the out-patient department of the hospital. In this case much good has been accomplished, but probably some of the larger fibroid glands will later need to be excised.

Another young woman had a marked enlargement of the right posterior cervical group. Some of the glands had become caseous, broken down, and there was a discharging sinus. Four months' treatment with tuberculin was without apparent effect. The enlarged glands were then excised, and the tuberculin continued. The wound healed by first intention. After her discharge as a patient, she worked at the sanatorium for two years as a domestic. Her health was excellent, although at one time a swelling appeared near the sight of the old scar, which, after resuming tuberculin medication, soon disappeared.

Many of the children admitted at Westfield have tuberculous cervical glands. Not many are noticeably large, but they can be readily felt on examination. Almost invariably these children also have enlarged bronchial glands, as evidenced by impaired resonance between the scapulae.

As a routine part of their treatment, we put these patients on bacillen emulsion, if they do not have more than a degree of temperature, or other signs of active pulmonary disease.

The initial dose is one millionth of a milligram, and the course of treatment extends over a period of about six months, until we reach ten milligrams. This maximum could be reached in a shorter time, but I feel that a small dose given over a longer period is more effective, and can be given in this way without causing reactions.

The result of treatment in these children is very satisfactory. The cervical glands decrease perceptibly in size, and the area of dullness over the hilus becomes smaller and less pronounced.

The longer the tuberculous disease has existed in a gland the slower will be the effect of treatment.

Resolution must necessarily be limited if fibroid changes have taken place. Suppuration has not occurred in any case where it did not exist prior to treatment.

One young girl having multiple tuberculous ulcerations of the skin and numerous involved glands showed marked improvement as soon as we began to administer tuberculin. She is still under treatment with every indication that the ulcers will heal and that the enlarged glands will disappear.

In a few instances where patients have developed adenitis while in the sanatorium, we have invariably found that instituting tuberculin treatment will prevent further swelling and cause that which has occurred to undergo prompt resolution.

This experience leads me to the conclusion that surgical interference is only necessary to remove such glands as have become caseous, or fibroid. Extensive dissections are unnecessary in these cases, as the small recently diseased glands that are left will disappear under the influence of tuberculin treatment.

IV.

THE TREATMENT OF TUBERCULOUS CERVICAL ADENITIS.

By JOHN B. HAWES, 2D, M.D., BOSTON.

I WISH it understood that I am making no special plea for tuberculin in the treatment of tuberculous adenitis. I believe that tuberculin does a certain amount of good in certain cases. With proper handling it does no harm. I also wish it understood that I am likewise not opposed to proper surgery. I feel very strongly that if we could multiply over this country men of the skill and experience in this line of Judd of Rochester, Dowd of New York, and Stone and Porter of this city, we might not need any tuberculin. What I want to emphasize strongly, however, is that surgery in many hands cannot do all we ask of it when dealing with

a tuberculous infection. In every instance the operation, be it large or small, should be regarded as but an incident in a course of treatment, the most important part of which comes before and after the operation; and furthermore, it should be borne in mind that it is a human being and not merely a neck which is being treated. The average doctor cannot do a good dissection of the neck; the radical operation, so-called, in most hands is not radical, and often does not cure.

The treatment of tuberculous adenitis has undergone a curious change during the past fifteen years. At first no pathological condition was looked upon as more properly belonging to the surgeon than enlarged tuberculous glands in the neck. The operation for "radical excision of glands of the neck" was a very common one in our hospitals and almost invariably it was entered in the record books that the patient was "discharged cured." It was indeed a curious state of affairs, because in practically no case was the operation radical in the strict interpretation of the word, and, as I believe I can demonstrate, it did not cure in a large proportion of cases, while in many of those in which an apparent cure resulted, large and disfiguring scars remained.

Next, late in the last decade, there swept over this country and Europe a wave of enthusiasm for the use of tuberculin as a cure for all forms of non-pulmonary tuberculosis. Surgery was decried; common sense methods of hygienic treatment were neglected, while many physicians, imbued with the tuberculin idea, became mere "injectors," as Nathan Raw scoffingly calls them. There is no need of dwelling upon the narrow mindedness of this attitude.

Finally, at the present time, a sounder and saner therapy has developed. Surgery, conservative or, in rare cases, radical, depending on the surgeon's skill or lack of it, has its place; tuberculin in some cases does wonders, in others it plays a lesser rôle and at all events, in competent hands can do no harm. Hygienic measures including out-door sleeping, proper diet, exercise and rest, baths and heliotherapy are given their proper place as the basis of all treatment in all forms of tuberculosis while, of the greatest importance, the cleaning up of portals of entry and removal of foci of infection such as carious teeth, diseased tonsils and adenoids are recognized as an essential part of treatment for this condition.

First, as to surgery in tuberculous adenitis, it is evident even to the casual observer, that in this city at least, and I believe elsewhere, the so-called "radical operation" is not performed nearly as frequently as it was ten years ago. The only possible reason for this must be that the result obtained did not justify its continuance. To make a complete dissection of the neck and to remove all traces of diseased glands is a difficult and well nigh impossible task. Were it possible to confine this operation to a few spe-

cially trained surgeons in every large city our results might be better; as it is, the operation is looked upon far too lightly and is entered upon without the skill, experience and training necessary for successful results. The tendency for surgeons to become trained and to devote special attention to diseases of one part of the body will, I hope, lead to better conditions.

I am far from maintaining that wholesale removal of glands is not the best procedure in certain instances. Where there are large, discrete isolated masses, without suppuration, a simple incision with removal of these masses *without any attempt* to do a complete dissection is frequently a measure of greatest value. In other less favorable cases, the removal of part of a large mass will often enable the patient to handle the rest of the diseased tissue himself. These operations, however, are not radical ones.

Conservative surgery has a far wider sphere of usefulness. The incision of abscesses and evacuation of pus, the curettage of an abscess cavity and removal of its contents, patient and detailed care in draining sinuses, etc., are regarded as surgical drudgery; careful attention paid to the details of this work, however, play a large part in producing good results.

The use of tuberculin will probably be confined to specialists and will never become common among general practitioners. While among the 250 cases of tuberculous adenitis that have been under my care during the last five years in whom tuberculin has been a part of the treatment, I have met with some discouraging results. I feel that on the whole tuberculin has accomplished a great deal of good and *in no case has done any harm*. The reasons for failure or unsatisfactory results with tuberculin have been chiefly as follows:

a. The length of treatment and consequent effect on the patients who frequently become discouraged and drift away before any results can be expected.

b. Poor general condition of the patient which prevents any response to tuberculin.

c. The presence of active pulmonary tuberculosis. I am unwilling to give tuberculin to such patients except under absolute supervision in a sanatorium or elsewhere.

d. Certain isolated, walled off, discrete masses of glands in adults or young adults. Surgical measures are best for these cases.

Those patients, on the other hand, who have done well with tuberculin or accompanying the use of tuberculin group themselves as follows:

A. A large group of patients who have been operated upon more or less extensively for tuberculous glands. I am firmly convinced as the result of a fairly wide experience in such cases that tuberculin is a great help not only in curing immediate trouble but in preventing recurrences.

B. Patients, adults or children, with discharging sinuses which have persisted in spite of

proper treatment. Tuberculin has been a great help in closing such sinuses.

C. Children with more or less scattered glands, making operation inadvisable, living under proper hygiene, who despite this seem to be at a standstill or to be going slowly down hill and whose glands are gradually enlarging. It is in this class of cases that tuberculin has produced brilliant results.

D. Comparatively rare cases in adults where a large mass of glands, often smooth, hard and immovable, is surrounded by much periglandular tissue. I have not infrequently seen such masses literally melt away under tuberculin.

Finally, I would again emphasize the fact that tuberculin should be looked upon with respect as a potent agent for good or for evil in all forms of tuberculosis. The chief criterion in its use should be not to do harm.

Of hygienic measures little need be said. I may safely take it for granted that the medical profession of this State is fully alive to the fact that not only pulmonary but all forms of tuberculosis demand fresh air day and night, rest and exercise in proper proportions, good food well prepared, baths, and sunlight and all that constitutes what I may call "right living." The care of tuberculous adenitis demands all of these. They are the foundation on which successful treatment rests.

Last, not only in helping to cure, but of more importance, in preventing this condition, the hygiene of the mouth and throat is most essential. Diseased tonsils whether large or small, adenoid growths and carious teeth must receive their due attention. The details of how best to do this may well be left to others better qualified than I.

On closing, two thoughts seem to me to be of prime importance—namely, that the physician remember always that cervical adenitis is but a form of tuberculosis and that he is treating not a few enlarged glands of the neck, but a human being suffering from an infection with the tubercle bacillus.

V.

TUBERCULOSIS FROM A DENTIST'S VIEWPOINT.

BY GEORGE H. WRIGHT, D.M.D., BOSTON.

We have heard the viewpoint of the surgeons and general practitioners, and of course I hear the viewpoint of the nose and throat men every week. The viewpoint of the dentist I think is important in this study inasmuch as most of the children which are treated for cervical adenitis are found between the ages of two and fourteen years.

These drawings* show: (1) A temporary tooth whose roots partially absorbed are in apposition over the crown and mesio-distal side of a permanent tooth. (2) A permanent tooth being un-

developed as to its root, lying beneath this temporary tooth, is easily pressed from above in the process of mastication. (3) A permanent tooth, first molar erupting through the gums approximately at six years of age showing large pulpy mass of embryonic connective tissue showing blood vessels, non-medullated nerves and only partial development of its roots. These states of tooth development are normal and exist through infancy and childhood and up to the time of eruption of the third molars. A consensus of observations find cervical adenitis in humans between two and fourteen years.

There exists a definite anatomical relation between these teeth and cervical glands. As the upper teeth develop we have growth of the face from the floor of the orbit downward, at the same time the face expands laterally. The lower jaw grows backward in the direction of the angle and ramus of the jaw, and subsequently becomes the location for three permanent molars. This growth is influenced through the function of use in mastication and deglutition. In this normal physiological process of growth, bone is formed, absorbed and reformed. Hence the necessity for lymphoid glands, which care for normal physiological waste.

The glands involved in this process are definitely bounded and located within a small triangle anterior to the sterno-cleido mastoid. From the symphysis of the lower jaw at the median line down to upper border of the hyoid bone, then backward and obliquely upward to angle at ramus of jaw with the lower border of jaw as base we have a small triangular area into which drains all material physiological or pathological from the alae nares, the vestibule of the nose, lips, cheek muscles, tissues of the gum, ligaments around the teeth called the periodontal membranes, the alveolar process and the jaw bone. This does not include the faucial tonsillar gland, which lies near the anterior border of the sterno-cleido mastoid and is drainage for the tonsil. Having considered these two relations: (1) The mechanical factors of normal eruption with the pump-like action of the pressure of mastication. (2) The anatomical status of the teeth and structures involved in a glandular enlargement within a limited triangular area, we finally consider a third factor influencing the entrance of the tubercle bacilli.

I believe the individual or combined activities of the streptococcus, staphylococcus, or pneumococcus, and occasionally other microorganisms, are the common predisposing factors and almost necessary agents which prepare the tissues and open a pathway for the subsequent invasion of tubercle bacilli. Such agents we always find in a dirty and diseased condition of the teeth and adjacent structures. This belief is strengthened and confirmed by experimental researches and recent clinical observations.

Cornet (*Journal American Medical Association*, Aug. 6-13, 1910) demonstrated before the tenth meeting of the German Surgical Society

* See *Loc.* BOSTON MEDICAL AND SURGICAL JOURNAL, May 2, 1914.

that he could produce tuberculosis of the cervical glands by inoculating pulps of teeth through artificial cavities of animals. Then obtained the same results by rubbing cultures of the tubercle bacilli between the lower incisors, root and alveolar process.

Baumgarten (*Journal American Medical Association*, Aug. 6-13, 1910) fed animals on tuberculous material. In every case produced tuberculosis of cervical lymph glands and found an involvement coincidently of the tonsils.

Odenthal (*Journal American Medical Association*, Aug. 6, 1910) found in 131 cases of caries of the teeth a glandular enlargement on one side only and that associated with the teeth.

Reese tabulated 13,167 children, 80% with carious teeth.

Stark (*Britr. Z. Klei. Chir.*, xvi) examined children with cervical lymphadenites, 80% with carious teeth; 16% of the 80% with hereditary predisposition to tuberculosis, 41% of the 80% no other cause than carious teeth. Average age, eight and one-half years.

Morelli and Jaruntowski (*Zahnartzl. Wochenschr.*, viii, 3701) demonstrated tubercle bacilli in carious teeth of patients suffering from phthisis.

Hoppe found tubercle bacilli in carious teeth of otherwise healthy patients.

The possibilities bound up in the micro-organism streptococcus when it leaves one live body to continue its growth in another are enormous. This bacillus alone is capable of lowering the vitality of the tissues and through its hemolytic action on the blood and adjacent structures to render a pathway for the invasion of tubercle bacilli a simple matter, and although at times the streptococcus may be harmless it possesses the alarming capacity through transmutation of becoming a most virulent germ. As to whether it becomes harmful or not appears to depend on its environment and oxygen supply.

For example:—

An abscessed root of a tooth with a confined gangrenous pulp and necrotic area of alveolar process deep down below the surface of the gum, would favor the growth of the virulent type of pus-forming streptococcus through lack of oxygenation of the parts, whereas such micro-organisms might be recovered from the surface mucosa of the mouth, and on cultivation and inoculation show the harmless variety by comparison. It is a localized hemolysis that has prepared a favorable pathway for the subsequent invasion of the tubercle bacilli through the structures described, into lymph spaces not definitely defined by endothelial walls, thence into the true lymph vessels and finally into the cervical glands. I believe this is the mode of entrance for toxins into the system, as manifested in arthritis, when associated with infection from the teeth, albeit the local glands are not involved or enlarged.

A word relative to the discussion by Dr. Chad-

wick: We consider all tuberculous patients poorly equipped unless they are surgically clean as to teeth and alveolar process and decidedly handicapped when unable to properly prepare food for assimilation without teeth with which to masticate; if not by natural means then substitutes should be provided. We believe every institution for the treatment of tuberculous diseases should include a proper care of the teeth and mastication.

Summary.—We have shown the anatomical relation between teeth and glands. (2) A mechanical factor, influencing the pumping into the adjacent tissues of debris through loose teeth and mastication. (3) A prepared pathway and open door for the entrance to glands of tubercle bacilli by the localized hemolysis of tissues through the action of the streptococcus and other bacteria.

DISCUSSION.

A. N. BROUGHTON, M.D., Jamaica Plain, Mass.: Dr. Porter has stated, in a very large measure, what I believe about the subject under discussion. When I was at the hospital here we had the régime where nearly all the men did a complete dissection of the neck for tubercular adenitis. Those were the days in which we had extensive, mortifying, and disfiguring scars very commonly. When I got out of the hospital, I found it an imperative thing to clean up the neighborhood in which I lived of tonsils and adenoids. In the first ten years, I did a considerable number, thinking that all large tonsils and adenoids needed operation. The same thing applied to tubercular glands. In later years, not because I have cleaned up the neighborhood entirely, I have operated more and more sparingly on glands, tonsils, or adenoids.

My attention was called to the relation between the teeth and the tonsils by Dr. Wright's work, of which he will speak later. In a reprint of his and Dr. Cobb's, I got my first suggestions as to the relation between those structures. I have come to believe entirely in the theory that the enlargement of tonsils alone is not an indication for operation.

In the cases of cervical adenitis, I notice that most of the men who have spoken have grouped them very largely as tubercular, even if they were not demonstrable as such, and I agree that a large percentage of them are tubercular and of the bovine type, even when a tubercle cannot be pathologically demonstrated. I believe that the thing of the utmost importance to do first is to get rid of the focus. It seems to me foolish to operate on the glands of the neck and leave a source of infection in the throat. Having gotten rid of the tonsils or adenoids which are infected or the carious teeth, the next problem is a very considerable one, and I agree with Dr. Hawes, as well as Dr. Porter, in believing that in all cases a most thorough and comprehensive anti-tubercular treatment should be faithfully tried until it is perfectly clear that the glands will not quiet

down. If they do not, after an extended trial, I believe in operating. Even then, I think it wise to get out with as little disturbance of the glands as possible.

Judd's statistics, of which Dr. Porter spoke, are interesting. There is one paragraph in which Judd states that a very large number of glandular enlargements disappeared after they cleared up the tonsils and teeth, which were the sources of the enlargement, without coming to radical operation. This goes hand in hand with his statement that if you were to examine a very large number of children under fifteen, in a majority of cases you would find a distinct glandular enlargement. So that although Judd reports over 600 cases as operated, it is obvious that many more were not operated excepting to remove the tonsils or adenoids. In other words, apparently, they believe at Rochester that the thing of first importance is to remove the source of the infection, and that a large portion of the glands will quiet down of themselves after that.

I want to call attention to the statement of Dr. Richards in relation to operating on children for tonsils and adenoids, where the parents have been tubercular. It seems to me it would be a mistake to do that commonly. You cannot get away from the fact that if you take away a healthy tonsil, you are removing one line of defence. When those defences have lost their value, it is right and proper to remove them. But to anticipate and operate on an otherwise healthy tonsil merely because the parents have been tubercular seems to me far too radical. It goes without saying, that at the first sign of infection, they should be operated.

I think there is a distinct choice as to the right time for operating even on the tonsils and adenoids. Where the glands are enlarged and are about ready to break down, by operating one throws an additional burden upon the glands and increases the amount of septic absorption and hastens their breaking down. If possible, I like to do a tonsillectomy when the glands are receding, or before they are at all near the breaking down point. Again, in these cases I would emphasize the need of a faithful anti-tubercular treatment before deciding that it is necessary to operate. In this respect, many of the good results of Dr. Chadwick's cases, I believe, were not alone due to the use of tuberculin, which he emphasized, but also to another advantage, which he did not speak of, the very efficient anti-tubercular treatment that they had in other respects. My experience with tuberculin has been smaller than any hospital practice would give, but I think it is one of the agents which in carefully selected cases very materially helps.

As to mortality in a radical operation, I do not think that ought to weigh in the scale, materially. There should be, roughly speaking, little or no mortality. I doubt if it is a question of that nearly so much as a question of scar and

the dread, not of recurrence, but the growing of smaller glands which were overlooked. I do not care how careful the dissection is, it is surprising how many small glands will be found to be somewhat enlarged, even shortly after the operation. Those glands were simply overlooked at the time of operation.

The cases of tubercular adenitis that are under two years of age I believe to be more serious than in older children. It is much harder to take care of them by any anti-tuberculous treatment in my experience, and I consider them very grave cases for prognosis.

D. CROSBY GREENE, M.D., Boston: I was interested in seeing the drawings of Professor Most, because there is an article which he published five or six years ago which is of some moment as bearing upon the discussion this afternoon. He at that time made a series of injections to determine the foci of infection of cervical tuberculous glands. He published the results of these injections, which were somewhat as follows: A large majority of the afferent lymph channels of these glands were traced somewhere in the tonsillar region, the region of the pharyngeal tonsils. The proportion was about 70%. A surprisingly large proportion, 13% as I recall it, was found to derive its infection from sources which were near the surface of the skin. These places were the point of juncture between the skin and mucous membrane at the corners of the mouth, at the entrance into the nose and at the margin of the eyelids. In about 13% of the cases, which numbered over 100, the infection was traced to these superficial places on the face. The remainder of the cases apparently were infected from the teeth and other places inside the mouth.

Dr. Porter has said that it is up to the throat men to arrive at some unanimity as to whether a tonsil is the source of infection or not in a given case; that in a given case we should learn whether a tonsil is tuberculous or not. This is a very difficult proposition. We know in the first place that the presumption is in favor of the tonsil as the portal of entrance for infection. We know also that in a very large proportion of tonsils in cases of tuberculous adenitis it is impossible to find evidence of tuberculosis either by microscopical examination or by bacteriological examination or by injection. In my own experience (I have not tabulated the cases) I have had examinations made in a great number of cases and the results have not been at all definite. In some cases of tuberculous adenitis, tubercle bacilli have not been found in the tonsils. In some cases we very often got no evidence of tuberculosis in the tonsils. In other words, the tubercle bacilli can make their way through a tonsil into the gland without leaving any trace in the tonsil itself in the way of tuberculous disease of the tonsil or even without the presence of the bacillus of tuberculosis. There are, of course, cases in which it is possible to make the diagnosis of tuberculosis of the tonsils, but I be-

lieve such cases are extremely rare. Cases in which a distinct lesion, which can be classified as being a tuberculous lesion of the tonsil, are so rare as to be negligible. I have not seen more than two in my experience. I believe they must be very rare. These are usually cases of tuberculous ulceration of the tonsil, which do not constitute any considerable portion of the cases under consideration.

JAMES S. STONE, M.D., Boston: It is important to recognize that by no means all glandular swellings in the neck are tuberculous. Comparatively few of the sudden, acute, painful swellings are of this character. The location of the swollen glands gives some indication of the nature of the infection. In determining the primary focus from which the cervical glands become infected, certain anatomical points are of great help. If a line is drawn vertically upward from the middle of the auditory canal, roughly speaking any infection in front of that line and above the outer corner of the eye may lead to involvement of the preauricular glands; any infection on the face below the outer corner of the eye but above the outer corner of the mouth may involve the glands which are in front of the angle of the jaw close to the groove in which the facial artery can be felt; any infection below the corners of the mouth may involve the submental glands; any infection behind the line drawn upward from the middle of the auditory canal drains back into the posterior group of glands. These simple guides, though not strictly correct anatomically, serve as a good clinical working basis. The lymphatics of the throat, the nasopharynx and the tonsils, drain into the deep glands which lie behind the angle of the jaw and under the middle of the sterno-mastoid muscle. The lymphoid tissue of the naso-pharynx is without question the most common point of entry or seat of primary infection in cases of tuberculous cervical adenitis. But neither the gross appearance of the tonsils nor the clinical manifestations of adenoid hypertrophy bear any constant relation to the severity of the infection of the cervical lymphatics. The lymphatics from the tonsils pass a little further forward, nearer the anterior edge of the sterno-mastoid muscle, than do those from the posterior pharyngeal wall or the Eustachian tube, which may lead into glands near the posterior border of the sterno-mastoid muscle. The glands involved in infections of the middle ear usually lie behind the sterno-mastoid.

These definite anatomical groups of glands give us a clue as to the source of the infection. Cervical adenitis is always a secondary infection. There must be some point of entry from which the infection starts. This point of entry is not always evident when we see the enlarged glands. The original source of infection may be healed. Moreover, a relatively normal tonsil may allow the passage of tubercle bacilli through it and

not itself become infected. It is sometimes impossible to tell whether a tonsil is or is not infected. If the tonsillar group of glands is infected, even though no primary source of infection can be found, it must be assumed that the tonsil is not normal and ought to be removed, even though it shows no sign of disease; because the evidence is practically overwhelming that it has been the point of entry and may still contain the focus of infection.

No mention has been made of something which frequently occurs after complete enucleation of the tonsils. I refer to the development of lymphoid tissue along the posterior pillars of the fauces. Since complete enucleation of the tonsils has become common, we are, I think, beginning to see more and more retro-pharyngeal adenitis. Frequently I have seen lymph nodes, and have at times dissected out tuberculous lymph nodes, at the point of the posterior pharyngeal wall which comes in view as you look in underneath the soft palate. Within the last few months I have seen more such cases of lymph node infection in that region than before. I think this is in part due to the development of the lymphoid tissue, which seems to take the place of the enucleated tonsils. This reformation of lymphoid tissue should make us conservative and not allow us to yield without reason to what is becoming a common request of parents, that the tonsils and adenoids be removed because a child has occasional or even frequent colds.

In addition to recognizing that lymphadenitis is a secondary infection, and recognizing the importance of removing the primary focus, we must remember that hygienic treatment is of supreme importance both before and after operation. In that I would agree absolutely with Dr. Hawes. Dr. Chadwick mentioned the importance of sanatorium treatment, making the very suggestive statement that the cases in which he had failed with tuberculin were out-patients at his sanatorium, where he could not give them the out-door hygienic care.

Dr. Porter spoke of three groups of cases. The first included babies under two years of age. I feel very strongly that these are among the most serious cases with which we have to deal. A child under two years who develops tuberculosis has little resisting power, or a very serious infection, is a poor risk. They have no business to develop tuberculosis at that age. If they develop it, whether they are treated medically or surgically the risk is great. In each individual case the treatment must be outlined according to circumstances. If the only important focus is in the cervical glands, that ought to be treated surgically. If the cervical adenitis is only part of a general tuberculosis, then surgical treatment is a minor consideration.

The second group mentioned by Dr. Porter included the cases coming on in older children. He mentioned the difference between the cases

of lymphadenitis in children and the cases which occur in adults. I think that there is a very definite basis for the difference. In children the vast majority of the cases of lymphadenitis occur in the tonsillar group right under the middle of the sterno-mastoid muscle. I feel that the bulk of those cases are of the bovine type, and that the liberal milk diet of children is a great etiological factor in those cases—a bovine infection, tuberculous milk, the bacilli entering through the tonsils and spreading to the glands.

In the third group, including adults, the cases resemble somewhat those seen in babies. The infection is more frequently of the human type, and often the lymphadenitis is only a part of a general tuberculosis. The source may not be directly from the tonsils; it may not be directly from the lungs. These patients have a lowered resistance to the tubercle bacillus. The infection may involve chiefly lymph glands, or may involve any organs of the body. In those cases where the infection spreads from one group of lymph glands to another the fact that any particular glands are affected does not mean that the source is in the region from which the lymphatics enter the particular glands, but that there is a systemic infection, the involvement of the lymph glands being an incident.

Dr. Hawes says he holds no brief for tuberculin. I hold no brief against tuberculin. Many swollen glands subside while being treated with tuberculin, as they do under other methods of treatment. The much despised poultice used to be a favorite treatment. A flaxseed poultice will do one of two things. It will either, if it is possible to bring about resolution, hasten this, or if the disease is so advanced that this is impossible it will hasten breaking down. It will make the glandular condition declare itself. It will clear up a condition in the same way that Dr. Hawes says tuberculin clears it up. These are the cases where good surgical judgment is necessary. If one objects to the term poulticing as being old-fashioned, it may be called inducing hyperaemia.

Cases of tuberculous lymphadenitis should be treated either as glands or as abscesses. I feel more and more that no middle ground is tenable. We ought to excise glands or open and treat abscesses. If enlarged glands have persisted for a material length of time and are not subsiding within a couple of months, then those glands ought to be removed surgically, provided there are not complications which render this unwise. If the adenitis is only a complication of a medical tuberculosis then we must treat each individual case on its merits.

In children the removal of the glands and of the primary trouble in the vast majority of cases cures the infection once and for all. The cause must be removed. If we cannot treat the glands as glands and remove them, then they should be treated as abscesses. A question is very com-

monly asked by parents and by patients today; one put in their mouths by the medical men of an earlier generation. "Is it ready to open?" That question is most pertinent. The best results in treating abscesses can be obtained by letting the glands thoroughly soften down, become thoroughly walled off, not by a firm fibrous capsule, but by a zone of inflammatory tissue. Let the abscess come near to the skin, but not involve the skin, for skin involvement means slow healing and disfiguring scars. Then when the glands have formed an abscess it can be drained, the tuberculous material can be thoroughly removed by curetting and wiping out with gauze. The best results can be obtained by a thorough, careful, painstaking cleaning out of the abscess cavity, followed by packing lightly but thoroughly into every recess of the cavity with gauze. The gauze may be left untouched for a period of four or five days, or even a week. It may smell bad, it becomes saturated with pus, but during this time there has been opportunity for the inflammatory wall around the outside to throw out granulation tissue. The wick at the end of five or six days may be removed and nothing replaced. Very frequently an abscess so treated will heal immediately and give no further trouble. In this way the constant dressings, which to children especially are terribly trying, with the frequent packings, cauterizations, and the long drawn out treatment of sinuses, may be avoided.

The cases in which some glands are only just becoming caseous, while others have been completely destroyed and formed abscesses, are those in which the skilled judgment of the surgeon is necessary if a satisfactory outcome is to be obtained. Fortunately we see today in the hospitals much less severe cases than were formerly common. Patients seek treatment earlier.

One thing in regard to the scars is important. A line of incision along the skin fold of the neck gives a trifling scar. But if the incision is long it is absolutely essential that the platysma which lies at right angles to the line of the skin folds of the neck should be stitched, because if this is not stitched then the line of the scar inevitably spreads.

It is most important to visualize as clearly as possible the entire pathological process. If the complications or the general health of the patient are the chief factor the treatment of the glands themselves becomes a matter of comparatively little significance. When, however, the glands are the chief manifestation of the tuberculous process, one should picture clearly exactly the condition of the glands. When the infection first begins there is swelling due to congestion and edema. This at first is confined to the glandular structure alone, but if the process is severe it very soon spreads into the peri-glandular tissues. The spread into the peri-glandular tissue is what brings on pain on movement and the ordinary symptoms of a stiff neck. There

may be hyperemia and swelling of the glands and also peri-glandular inflammation without the process going on to caseation. If, however, the process continues long, a caseous destruction in the central portion of the gland is inevitable. This may occur in one or in many foci within the glands, but for a long time there may be a considerable amount of glandular tissue left intact.

Sometimes before the destruction of the glandular tissue has become complete, the disease may spread through the capsule into the surrounding tissues. In other cases where the process is more slow the destruction of the gland goes on so quietly that the process is entirely confined within the capsule. The spread of the caseous process into the peri-glandular tissues renders the formation of an abscess certain. This process spreads in the soft parts until it reaches the skin, then it involves the skin, finally perforates the skin, and a fistula becomes established, which may or may not heal, according to the resistance of the patient and the particular conditions existing in the course of the fistula. If the caseous process is confined within the capsule of the gland, then for an indefinite time, even for many years, there may remain a tuberculous cyst in which the organisms may be dead—or at least are absolutely quiescent—until something in the general condition of the patient or some local trauma lights up the process again.

With a mental picture of the pathological process clearly in mind, the surgeon should decide whether he can aid nature by eradicating the disease or whether he can better and more safely aid nature by simply hastening a destructive process which ordinarily is slow and tedious; but the surgeon should have an opportunity to decide sufficiently early to be given a choice.

Original Articles.

VISCERAL PTOSIS. A REVIEW.*

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THE subject of visceral ptosis is exceedingly complicated, ptosis being not a local process, involving one or a few organs, but part of a much more general condition, involving not only the abdominal contents, but the musculature and bony framework of the body as well.

Although the clinical picture of enteroptosis was clearly described by Glenard¹ in 1885, fail-

ure to recognize the general nature of the condition has been responsible for almost uniform failure of all methods of treatment. The work of recent writers, especially Goldthwait,² Martin,³ Smith,⁴ and Coffey,⁵ has resulted, however, in a clearer understanding of the subject.

It is my purpose to review briefly our present knowledge of the mechanics, causes and symptoms of visceral ptosis and to set forth with a little more detail the varying ideas as to its treatment.

Clinical Appearances. The clinical appearances are easily recognized by the characteristic ptotic figure. The attitude is that of physical weakness. The individual is round-shouldered and flat-chested, standing with the head drooping and arms hanging in front of the center of gravity of the trunk. The waist line is high, the lower abdomen protuberant, giving in uncorseted women not infrequently the appearance of pregnancy. The costo-vertebral angle is more acute than normal. The lumbar curve of the spine is usually obliterated, giving rise to the straight back, although occasionally the lumbar curve is exaggerated to the point of lordosis. The muscular development is below par and the patient is usually thin and anemic.

Closer observation shows that the abdominal cavity is narrower above than below, because of the flattened chest and straight spine. The pelvic inclination is much diminished, the sacrum being perpendicular and the lower border of the symphysis pubis sometimes at a higher level than the coccyx. As a result of this, the axis of the pelvis is continuous with that of the abdomen, instead of forming an angle with it, as normally.

Gynecological lesions are rather common, not as a direct result of the prolapse of the abdominal viscera but of the patient's general lack of tone.

Anatomy. In order to fully understand the anatomical conditions present in ptosis, it is necessary to review the differences in development between man and the quadruped. In the quadruped, it will be remembered, all the intra-peritoneal viscera are freely movable and equipped with a mesentery.

In man, on the other hand, certain changes in development take place in order to furnish additional support to the abdominal organs, necessitated by the erect posture. Briefly stated these are:

1. Fusion of the liver with the diaphragm.
2. Retro-peritoneal fixation of the duodenum and pancreas by obliteration of their mesentery.
3. Adhesion of the ascending and descending colon and mesocolon to the posterior parietal peritoneum.
4. Adhesion of the transverse colon to the great omentum.
5. Fusion of the anterior and posterior layers of the great omentum.

The separate means of support of the individ-

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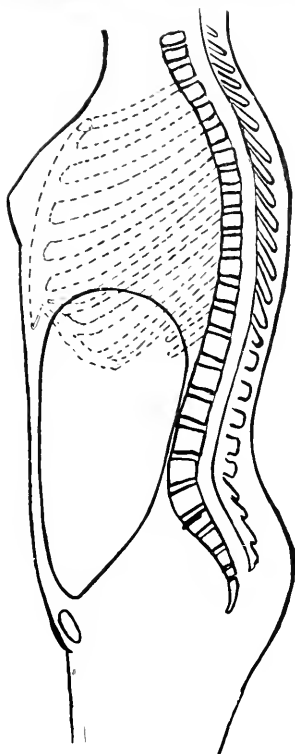
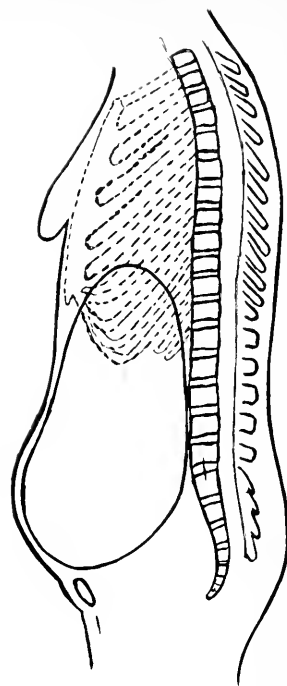


FIG. 1.



FIGS. 1 AND 2.

FIG. 2.

Showing the differences between the normal figure (1) and the prototic figure (2). In the latter, note the protuberance of the abdomen; its greater width below than above; the absence of an angle between abdominal and pelvic cavities; the diminished pelvic inclination; the straight spine; flat chest; and the more acute costo-vertebral angle.

ual organs are as follows: The posterior half of the liver is fused with the diaphragm, the ventral half being supported by the falciform ligament. The cardiac end of the stomach is firmly fixed by the esophagus and gastro-phrenic ligaments. The remainder of the organ is suspended from the under surface of the liver by the lesser omentum, which is thickest at its free border, where it contains the vessels going to the liver and the bile ducts. The pancreas and duodenum are retroperitoneal and firmly attached to the vessels in front of the vertebral column.

The duodeno-jejunal angle is supported by the muscle of Treitz, which runs to the left crus of the diaphragm. The small intestine is freely movable, being attached to the posterior abdominal wall by its mesentery, which is shortest near the termination of the ileum. The cecum and ascending colon are adherent to the posterior abdominal wall, their mesentery having become fused with the posterior parietal peritoneum. The hepatic flexure receives support from the liver by the hepato-colic ligament. According to Longyear, it is also connected with the right kidney by a firm band of fibres, but this offers no support to the colon because the right kidney is the least firmly supported of all the abdominal organs.

The transverse colon is suspended from the stomach by the gastro-colic omentum and indi-

rectly from the diaphragm through the liver, lesser omentum and stomach. The splenic flexure is the most firmly supported point of all, being held in position by the gastro-colic and gastro-splenic ligaments. The descending colon is also firmly attached to the posterior abdominal wall by fusion of its mesentery with the posterior parietal peritoneum. The sigmoid has a short mesentery.

The kidneys are retroperitoneal, surrounded by a fatty capsule, and undoubtedly derive more or less support from the parietal peritoneum and the layers of the fused mesentery of the ascending and descending colon.

In addition to these direct supports which we have described, there are two important factors in maintaining certain of the abdominal organs in place. The first of these, the backward pressure of the abdominal wall, is sufficiently obvious.

The second was pointed out by R. C. Coffey.⁵ If we look at a sagittal section of the normal body (Fig. 3), we observe that the kidneys are situated in the lumbar fossae, behind the peritoneum, and back of the line of downward pressure on a sort of shelf formed by the lumbar curve of the vertebral column and the psoas muscle. This shelf makes an angle of 51° with the horizon and undoubtedly plays no small part in the retention of the kidneys in normal position.

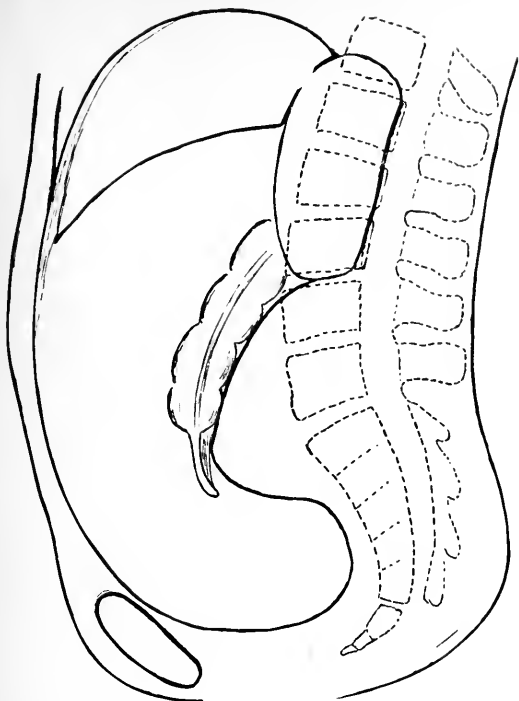


FIG. 3.

Showing the kidney shelf formed by the psoas magnus muscle with the lumbar curve of the spine.

Goldthwait lays considerable stress on the importance of the cervical fascia, which through its continuation, the pericardium, forms a suspensory ligament for the diaphragm. He has demonstrated that putting the cervical fascia on the stretch by throwing the head backward will raise the stomach three to four inches.

The most firmly supported points in the visceral tract are the cardiac end of the stomach, the splenic flexure of the colon, the pylorus and the duodenum. The least firmly supported points are the stomach between its two extremities, the cecum, ascending colon, hepatic flexure and transverse colon. For this reason prolapse of the right kidney occurs early in the process; and is extremely common. Prolapse of the left kidney, on the other hand, is found only when the splenic flexure, the most firmly supported point of the intestinal tract, gives way, and is indicative of the most complete form of ptosis.

Looking at the support of the abdominal viscera from a slightly different point of view, we see the cervical fascia, attached above to the base of the skull, continued downward as the pericardium, giving support to the dome of the diaphragm. From the diaphragm is suspended the stomach by means of the liver and lesser omentum; and from the stomach, the transverse colon by means of the great omentum. In the round-shouldered stooping attitude there is lack of tension on the cervical fascia, dropping of the dome of the diaphragm, and therefore prolapse of the stomach and transverse colon, aided, of course, by the relaxed abdominal muscles, flabbi-

ness of the omentum and atony of the muscles involved. This constitutes mid-line ptosis.

The support of the right kidney is intimately associated with that of the hepatic flexure of the colon, as we have seen, and therefore prolapse of the kidney is always associated with ptosis of the hepatic flexure and ascending colon and cecum mobile. This constitutes right-sided ptosis. These two forms of ptosis may be associated or occur separately.

Two conditions must be mentioned which are frequently associated with visceral ptosis, namely, Lane's⁶ kink and Jackson's⁷ membrane. There is wide variation of opinion as to whether these are directly concerned with the ptosis or are merely coincidences.

Lane⁶ himself considers the ileal kink the result of ptosis of the cecum, with the resulting crystallization of the lines of strain into peritoneal adhesions. Coffey,⁵ on the other hand, believes Lane's kink to be due to chronic inflammation not associated with ptosis.

Regarding the etiology of Jackson's membrane, there is again divergence of opinion. Jackson⁷ supposed the condition due to infection from within the cecum. Mayo^{8a} believes this membrane formation to be the result of late rotation of the colon, and descent of the cecum from its hepatic position after formation of the posterior parietal peritoneum. In this event the cecum burrows its way into its position in the right iliac fossa, investing itself with an extra layer of peritoneum, which ultimately becomes the pericecal membrane. Lane⁶ ascribes the pericecal membrane to the same causes as the ileal kink, namely, the development of peritoneal adhesions to resist the prolapse of the cecum.

Etiology. The causes of ptosis generally agreed upon are:—

1. Defects in development.
2. Faulty attitude.
3. Deficient musculature.
4. Rapid loss of flesh.
5. Repeated pregnancies.

It is probable that none of these causes alone is ever responsible for prolapse of any of the viscera. Certain individuals seem to be predisposed to ptosis by hereditary peculiarities of physique or congenital defects in development. The flat chest and straight spine may be inherited. Among the congenital defects in development which have been noted are:—

1. Failure of the colon to rotate completely into the right flank and carry its mesocolon across the front of the right kidney, depriving that organ of one of its most important means of support.
2. Failure of complete fusion between the right meso-colon and the posterior parietal peritoneum, resulting in cecum mobile.⁹ This occurs in 20% of all individuals.
3. Failure of the layers of the great omentum to fuse, allowing prolapse of the transverse colon.

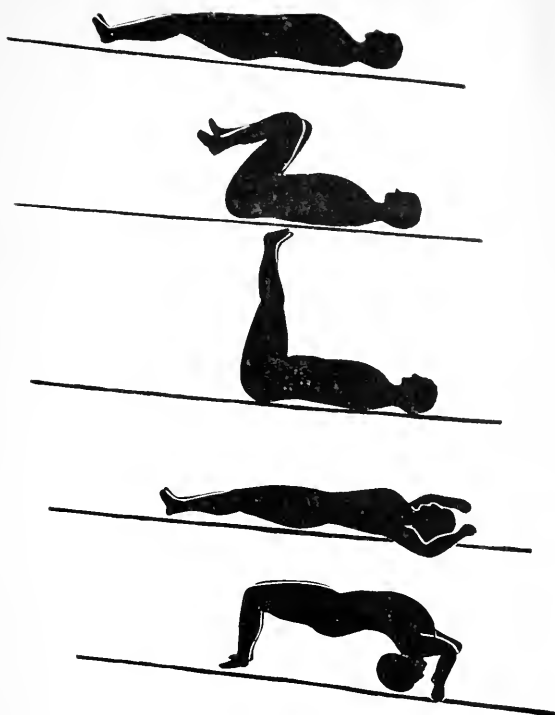


FIG. 4.

FIGS. 4 AND 5.

MARTIN'S EXERCISES.

All of these with the lower extremities require the fixing of the pelvis upon the trunk which is done by the muscles of the abdominal wall.

The first figure shows the position of the patient ready to begin the exercises.

Exercise 1. Flexion of the thigh upon the abdomen and the knees upon the thighs, brings into play, in addition to the muscles of the abdominal wall, the quadriceps extensor, hamstrings and iliopsoas.

Exercise 2. Flexion of the thighs with the legs extended brings into action the abdominal muscles, the iliopsoas and quadriceps extensor.

Exercise 3. Forced inspiration and expiration with the arms above the head. This brings into use the abdominal muscles as muscles of respiration, but particularly exercises the diaphragm, intercostals, pectorals, sternomastoid, trapezius and deltoid, as well

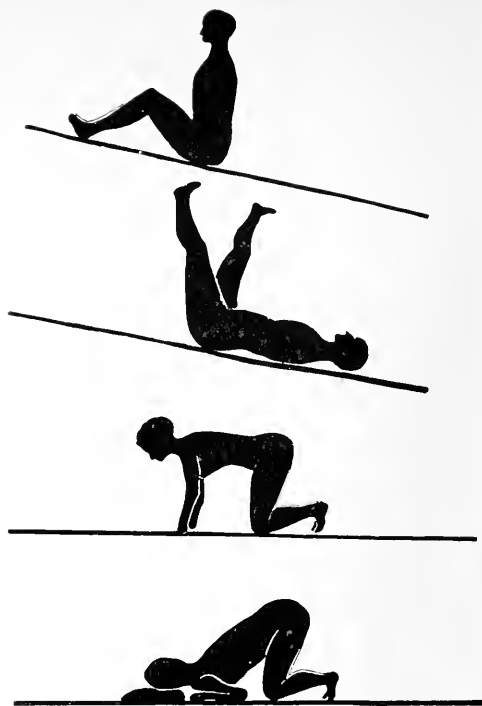


FIG. 5.

as the muscles of the arm. Martin considers this the most important of all the exercises, and alternates it with each of the other exercises.

Exercise 4. Raising the trunk upon the heels and hands develops nearly every muscle in the body, but especially the muscles of the back and upper and lower extremities.

Exercise 5. Raising trunk to sitting posture. This brings into play all the abdominal muscles, but chiefly the rectus.

Exercise 6. Adduction and abduction of the lower extremities, the thigh being flexed on the abdomen and the legs extended. This requires the use of all the abdominal muscles to fix the pelvis upon the trunk, but especially exercises the adductors, the obturators and pyramiformis, and of course the quadriceps extensor and iliopsoas.

Exercise 7. Inspiration and expiration on the hands and knees.

Exercise 8. Inspiration and expiration in the knee-chest position.

These two exercises are designed for women with retroverted uteri, the position and upward movement of the diaphragm tending to draw the uterus into normal position.

When in an individual predisposed by defective development, deficient musculature and faulty attitude occur, ptosis is inevitable. Rapid loss of flesh and repeated pregnancies exaggerate the condition.

Symptomatology. The symptoms of visceral ptosis may be divided into three groups:—

1. Gastric and intestinal stasis.
2. Pain due to tension on mesentery and peritoneum.
3. Neurasthenia.

Of the symptoms due to stasis, obstinate and prolonged constipation is the most pronounced. After this come gas formation in stomach and intestines, gastric distress, loss of flesh and strength, lowered muscular tone, and staining of the skin. The prolapsed stomach presses on the pancreas and interferes with its secretion, explaining many of the gastro-intestinal symptoms. The type of chest and the general malnutrition render this class of individual more susceptible to pulmonary tuberculosis and other infections.

Goldthwait^{2b} has suggested that infectious arthritis may be due to absorption of toxins from the small intestine, the absence of pancreatic juice, which exerts an antiseptic action, allowing increase in bacterial growth.

The pain in visceral ptosis, aside from that due to disturbed digestion, is usually referred to the region of the umbilicus or lower abdomen, with the exception of that caused by movable kidney.

Of the neurasthenic symptoms it is hardly necessary to speak. In the most advanced cases they may be referred to every organ of the body.

Diagnosis. The diagnosis presents no difficulty, the characteristic enteroptotic figure being easily recognized. The x-ray and bismuth meal offer an exact method of determination of the degree of ptosis and stasis.

Treatment. Treatment may be considered under four heads: Medical, Gymnastic, Mechanical, Surgical.

Medical treatment should be directed to the improvement of the general condition, especially by proper diet, and to the relief of individual

symptoms, especially that of constipation. For the relief of this symptom nothing is so efficacious as the lubrication of the intestinal tract with liberal doses of the mineral oil known under the names of "liquid paraffine," "Russian oil," etc.

Gymnastic treatment may be said to include posture, exercises, and massage. The most careful attention should be paid to posture, correcting the drooping shoulders, the forward bend of the spine, and the protuberance of the abdomen. This is equally as necessary while sitting and lying as while standing. The patient should sleep without a pillow on a fairly hard bed; the effect of a pillow being to push the head forward, contracting the upper part of the chest, and relaxing the cervical fascia. The use of the Trendelenburg position is of value at times in the temporary relief of symptoms due to the stasis.

Of the mechanical methods of treatment, the corset is the most valuable. A good corset should have the following characteristics:

1. It should be short behind, especially at the top.
2. It should be long in front, especially at the bottom.
3. It should fit tightly about the pelvis.
4. It should fit loosely at its upper extremity.
5. It should lace in front.

Such a corset will throw the center of gravity backward, as shown by Reynolds and Lovett.¹⁰ The proper application of the corset is of the utmost importance. It should be applied in the recumbent, or, better, Trendelenburg, position. It should lace in three sections, the lowest one very tightly, the middle less tightly, and the upper should produce no pressure whatever.

The various appliances for the relief of floating kidney have been universally unsuccessful because they have been designed without regard to the ptosis, of which the kidney is only a part. A well-fitting corset, by producing backward and upward pressure on all the viscera, will give better results than any of the special apparatuses for floating kidney.

Surgical Treatment. The great difficulty with the surgical treatment of ptosis is the multiplicity of conditions to be rectified. Coffey⁵ gives the following list of operations which may be indicated.

Operation for Lane kink.

Operation for cecum mobile.

Operation for movable kidney.

Coffey's operation on great omentum.

Beyea's operation on lesser omentum.

Shortening of falciform ligament of liver.

Operations for changing shape of abdomen.

(a) On lower abdomen. (b) On upper abdomen.

To these may be added removal of Jackson's membrane, appendectomy, operations on the female pelvic organs and perineorrhaphy. Concerning the operations of Kellogg¹¹ and Martin¹²

on the ileo-cecal valve, we can only say that they are too experimental for discussion at present.

Operation for Lane kink as performed by Coffey⁵ consists in division of the constricting band and shortening of the upper leaf of the mesentery.

There are a number of operations designed for cecum mobile. Wilms⁹ splits the peritoneum in the right flank and then buries the ascending colon, making it retroperitoneal. Coffey⁵ and others simply suture the cecum to the posterior parietal peritoneum at the proper level.

Where Jackson's membrane is present, removal of the membrane, especially at the constricting portions, is the operation most universally done, although Connell¹³ twists the membrane into a rope, which he passes through the peritoneum at the outer side of the colon, and after drawing it through the muscle sutures it to the aponeurosis, forming a suspensory ligament for the cecum.

Of the operations for movable kidney it seems hardly necessary to speak.

Coffey⁵ has devised an operation for shortening the falciform ligament of the liver by a series of purse-string sutures. He also sutures the liver itself to the peritoneum by sutures passing through the liver on either side of the notch made by the termination of the umbilical fissure.

Beyea¹⁴ plicates the lesser omentum by a series of purse-string sutures.

Coffey suspends the great omentum, and by it the stomach and transverse colon to the anterior abdominal wall, by a series of sutures passing first through the peritoneum, near the original point of entrance. This line of sutures, usually about eight in number, runs transversely across the abdominal wall, being placed at such a level as to raise both the stomach and the transverse colon above the umbilicus.

In addition to these Coffey⁵ has devised two very ingenious operations for restoring the respective proportions of the upper and lower abdomen. The operation on the lower abdomen is as follows: An incision is made through the aponeurosis of the external oblique parallel to its fibres, and two to three inches above Poupart's ligament. The aponeurosis is separated from the underlying muscle for a distance of three inches above the incision, and then the upper part is overlapped over the lower and held by a row of mattress sutures. The same operation is performed on the opposite side. The diameter of the lower abdomen is considerably reduced by this operation.

The technic of Coffey's operation for expanding the upper abdomen is as follows: The abdomen having been opened by a high median incision to perform the various plication and suspension operations previously described, the peritoneum is closed as usual. Instead of uniting the fascia along the line of incision, however, the anterior rectus sheath is split one inch or more outside, and an aponeurotic flap dissected

up and reflected toward the median line, the reflected edges being brought together instead of the edges of the original incision, thus giving a considerable increase in the circumference of the abdomen. The denuded anterior surface of the rectus is not covered in except by the subcutaneous fat and skin, which are united in the usual manner, sometimes a small drain being inserted down to the fascia.

Lane^{6a} in cases of marked ileal stasis removes the entire large intestine except the rectum, uniting the ileum to the rectum by lateral anastomosis, thus getting rid of the stasis with its resulting auto-intoxication. The reader will be well repaid by a perusal of some of his papers, references to a few of which are given below.

Operative Results. Opinions differ widely. Coffey⁵ reports 41 cases treated surgically by various combinations of the procedures mentioned. Of these, 26 were symptomatically cured, 9 much improved, 4 somewhat improved, 1 unimproved, 1 died.

Rovsing¹⁵ sewed the stomach itself to the abdominal wall in 75 cases, in 22 of which he suspended the liver also, with good results.

J. G. Clark¹⁶ reports 55% of successes after the Coffey operation.

On the other hand, W. J. Mayo^{8b} says that "only a small number should be treated surgically. These patients are embryologically wrong."

Reynolds¹⁷: "Operation should be undertaken only when the surgeon has convinced himself that the local lesion is the cause of the symptoms and that the symptoms will be relieved by the operation."

R. R. Smith^{4a} performed various pelvic operations on 51 cases suffering from enteroptosis, of whom 15 were entirely relieved, and all but two received some benefit, although 19 were not relieved nervously.

Ochsner¹⁸: "I consider enteroptosis of small surgical importance."

Joseph A. Blake¹⁹ says: "There are two classes of cases:—

"1. Those in which ptosis of an organ contributes to the neurasthenic state simply by the effect on the organ itself (kidney, uterus, stomach). In this class the result of an operation depends on the degree to which the condition provokes or affects the neurasthenic state.

"2. Those in which a vicious circle is established (general splanchnoptosis). Operation in this class must relieve the auto-intoxication; and excision or exclusion of the colon is the only rational procedure."

Conclusion. The conflicting evidence reviewed in this paper is proof that none of the various methods of treatment has proved universally satisfactory. It is fair to say, however, that but few men have carried out any of the outlined procedures with the vigor ordinarily applied to the treatment of other pathological conditions. Concerning the surgical treatment, the amount

of work so far done is too small upon which to base an opinion. The number of surgical procedures which a single case demands must prohibit operative treatment in a considerable proportion of cases. Gymnastic treatment must be of great benefit early in the process, but unfortunately the anatomical changes are so extensive in advanced cases that but little help can be expected from exercises.

Corsets, although of course only palliative, and never quite relieving the patient's symptoms, nevertheless are of much value, and probably in advanced visceral ptosis will continue to give more comfort than anything else.

The greatest prospect for improvement lies in prophylaxis, as pointed out by Goldthwait. Certain individuals are predisposed to ptosis by anatomical peculiarities. These patients should be easily recognized by their tendency to the ptotic figures, and by general muscular insufficiency. Such persons taken early in life, their attitude corrected, and their muscles developed by exercise and proper food, it should be possible to prevent the development of extreme cases of visceral ptosis.

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A FEW NOTES ON THE TREATMENT OF ANTEPOSED UTERI.*

By HENRY T. HUTCHINS, M.D., BOSTON.

THE mass of literature relative to malpositions of the uterus is enormous. Has there ever existed a surgeon, interested in gynecology, who has not at some time or other written his share and perhaps more than his share, on this subject? Several years ago I resolved that whatever I might write relative to any gynecological subject, the discussion of uterine malpositions was a completed chapter and I would never burden my hearers with additional theories in this field, but I have become thoroughly convinced that a large class of sufferers, the cause of whose

* Read before the Obstetrical Society of Boston, Oct. 27, 1914.

symptoms has previously passed by unrecognized, can be relieved by surgical means.

For many years we have regarded an anteposed fundus as the normal position of the uterus, and a uterus found in this position as incapable of producing pelvic symptoms, especially those of low sacral backache, pelvic drag and pelvic congestion. That the classical symptoms of retroposition of the fundus not only can, but frequently are, caused by a uterus in anteposition, I believe to be true.

In the diagnosis of the cause of low backache and the common symptoms of pelvic drag and discomfort, the gynecological and orthopedic surgeons ought more frequently to work together. A great deal is being written at present on the symptomatology and treatment of various degrees of ptosis of the abdominal organs, chiefly in the female patient. In this discussion, one organ, the uterus, has received but scant attention from the point of the clinical diagnosis from existing symptoms. The retroposed uterus is commonly accepted as a definite cause of backache and pelvic drag. The anteposed uterus is as universally regarded as incapable of producing these symptoms, and when the fundus is found to be in the forward position another cause for the patient's symptoms is usually sought.

Various degrees of retroposition are spoken of as "a uterus in first, second, or third degree of retroposition." The anteposed uterus has received but little attention from a symptomatic standpoint. My attention was called to this fact by the appearance of many patients in my clinic complaining of low sacral backache and feelings of lack of low abdominal support, pelvic drag, etc., in whom on examination the fundus was found to be anteposed. At first I was at a loss to explain these symptoms, which occurred as frequently in women who had not borne children as in those who had. This led to a study of the anteposed uterus in all cases, both when seen at the time of examination and also during the course of many abdominal operations for pelvic diseases. It was soon seen that the anteposed uterus was capable of as wide excursions from the normal as the retroposed. So many cases appeared with retroposed fundus who had no symptoms of backache and pelvic drag, that I came to disregard the position of the fundus entirely in making my diagnosis and began to confine my attention to the relative position of the cervix only, in relation to the pelvic frame. It was then found that anteposed uteri did not occupy a fixed position in relation to the pelvis, but they were found to be in varying degrees of ascensus and descensus, according to the stability of the cervical supports. Some were found to be held snugly up to the symphysis with the bladder and anterior vaginal wall well supported, while others were found to have dropped back toward the hollow of the sacrum, while still maintaining their anteposed positions. In considering these

cases, I refer only to those cases of descensus in an antero-posterior direction, and not those of beginning prolapse with rotation toward the pelvic outlet, which cases form quite another and distinct class.

On further investigation, it was found that in every case of what I have termed an "anteposed uterus in descensus" which presented the symptoms of a retroposition, it was possible, by properly placed tampons which forced the uterus as a whole well upward, relieving the drag on the cervical supports, to relieve the patient of all her symptoms. The placing of tampons being a temporary expedient, I determined to operate and suspend these uteri for permanent relief, although heretofore I had never opened the abdomen for the purpose of suspending an anteposed fundus. At the same time a further study of these cases was begun in the hope of finding other causes for the symptoms, and this study was carried out in the operating room after the abdomen was opened.

Opening the abdomen by a generous incision and widely retracting the wound, the pelvis is exposed by gently drawing back the intestines without disturbing the relations of the pelvic organs. On inspection, the following conditions are noted: In cases where the uterus as a whole is well held up in the pelvis by its cervical supports, *whether the fundus is in anteposition or retroposition*, there will be (1) no fullness, congestion or dilatation of the ovarian and anastomosing veins as they run through the infundibulo-pelvic and broad ligaments; (2) there will be present no drag on the parietal peritoneum covering the lateral walls of the pelvis, especially that part covering the infundibulo-pelvic ligament; (3) there is no tension on either the round or utero-sacral ligaments, which in turn are covered by parietal peritoneum; (4) there is no descent of the bladder nor engorgement of the vesicle veins.

Quite a different picture is presented in that group of cases in which the cervical supports have given away and the uterus as a whole has descended into the bottom of the pelvis, still without regard as to whether the fundus is antverted or retroverted. In this group of cases we see on inspection: (1) the ovarian and anastomosing veins full, congested and dilated, forming a so-called varicocele of greater or less intensity. This fullness and distention extends throughout the pelvic portion of these veins, but it will be noticed ends abruptly as the veins cross the posterior pelvic brim from which point upward they are normal in size. (2) The infundibulo-pelvic ligament and parietal peritoneum are put decidedly on the stretch, the chief drag coming from the posterior part of the pelvis at or near the attachments over the sacro-iliac joint. (3) The round and utero-sacral ligaments share in this drag. (4) The bladder has gone down with the descent of the cervix and the vesical veins have shared the general pelvic engorgement.

As striking as this picture is, still more striking is the picture presented by the following manipulations. Grasping the anteposed but descended uterus with forceps and bringing it up to the point where the suspension is to carry it, the following results are visible: (1) The ovarian veins and their anastomotic branches, being relieved of tension, immediately empty themselves and become normal. (2) The pull and drag on the sensitive parietal peritoneum is completely released. In a moment we can see exactly what our suspension is going to accomplish before we perform it. As like results are accomplished whether the fundus is forward or back, provided the uterus is in descensus, it follows that it is the descensus alone and not the version of the fundus which is the leading factor in the diagnosis of these conditions. The cervix remaining as a well suspended, fixed point, it matters not symptomatically whether the fundus is forward or back. But let the cervical supports give way and the uterus as a whole descends in the pelvis. This descent cannot take place except at the expense of pulling the parietal peritoneum and the blood vessels contained in it, and putting these structures on a stretch from the brim of the pelvis downward. The ovarian veins are the chief sufferers. They return most of the blood from the pelvic organs to the general circulation. They are long veins, they enter the vena cava and renal vein high in the abdomen and contain no valves. They have a great deal of work to do and are poorly equipped to do it. When the pelvic drag comes, stasis takes place below the point where the veins cross the pelvic brim and the blood is with difficulty returned, resulting in an engorgement of these vessels below this point. The parietal peritoneum is extremely sensitive to tension and in the cases we are discussing, this tension is greatest at the posterior pelvic brim. These two factors fully account for the symptoms produced by a uterus in descensus.

These facts have led me to suspend many anteposed uteri when symptoms have persisted which I have heretofore attributed only to retroposed uteri, but with very satisfactory results.

If, on examination before operation, the cervix is found low in the pelvis, the uterus as a whole low, whether the fundus is forward or not, and if the lower supports have given way, the pull must necessarily come, in some measure, on the parietal peritoneum which covers and forms a large part of the pelvic ligaments. Especially is this true with the infundibulo-pelvic ligament containing the ovarian vessels. Thus even an anteposed uterus, providing it is in descensus, may readily cause sacral backache and the bearing-down pains and feeling of fullness and weight due to partial occlusion and congestion of the ovarian veins. If one is in doubt as to whether an anteposed uterus is causing these symptoms or not, he has only to properly place a vaginal tampon which will force the cervix

up and hold it in position for forty-eight hours and note the result. If the symptoms of drag and backache are relieved by this procedure, then the surgeon is fully justified in suspending an anteposed uterus. It is the recognition of these symptoms *without* the presence of a retroposed fundus which is important. I have come to regard the position of the *fundus* as of little moment symptomatically, but I always determine the relative position of the *cervix* in the pelvis and base my judgment of whether a suspension is necessary or not upon the amount of descent of the cervical portion. I will cite only two cases:—

CASE 1. Mrs. B., 41 years old, 3 para. Chief complaint was sacral backache. She had not been able to sleep on her back for five years on account of this sacral backache which was just as bad when lying in that position as when on her feet. This is an important point and would be expected from the conditions above described, as there is no less drag when a patient is on her back than when she is on her feet. The night before operation she did not rest at all on account of this severe backache. Upon examination I found a relaxed perineum and lacerated cervix. The uterus was of normal size and anteposed, but the organ as a whole was in marked descensus in the pelvis. Again the term descensus must not be confused with the term prolapse. There is no prolapse in these cases and the cervix does not approach the introitus. By descent I mean a falling directly backward toward the hollow of the sacrum when the patient is in the dorsal position. I do not mean a rotation toward the outlet which is a much later stage, and an entirely different condition. The doctor who had referred the case did not believe a suspension should be done because the uterus was not retroverted. The patient had, however, every symptom of a retroversion, and believing that the repair of the lacerations alone does very little good in these cases, *i.e.* does not reach the cause of the trouble, the abdominal operation was urged and accepted. After repairing the cervix and perineum, the abdomen was opened and just the conditions above described were found. It was possible to demonstrate in a moment what the actual result of a suspension of even an anteposed uterus which is in descensus would bring about. The ovarian veins between the uterus and pelvic brim were engorged and dilated, while above the pelvic brim they were collapsed. The sensitive parietal peritoneum covering the infundibulo-pelvic ligament was tense and the pull came from a point just over the sacro-iliac joint. As the anteposed but descended uterus was raised, and the pressure at the pelvic brim relieved, the veins immediately emptied and the peritoneum relaxed.

From the moment the patient came out of ether she was relieved completely of her backache, which she had had for five years, and she has had no return. She had not the slightest backache even the first night after operation, nor during her entire convalescence.

The second case was that of a young married woman, 26 years old, who had never had children. The same condition was found, an anteposed uterus in descensus, the same drag and congestion of

ovarian veins demonstrated, and the same result after operation.

To offset these cases I will mention another, a woman, 38 years, two para., who also had sacral backache. The uterus was anteposed, and as her physician felt strongly that an abdominal operation was not necessary, I did only the plastics. She is at a loss to know why her backache is no better after the operation as she had been assured by her physician that it would disappear. This anteposed uterus should have been suspended.

The symptom of sacral backache is so common in women who have borne children and in women who have not, that it deserves close attention. Mistakes in diagnosis are made by us all. Many backs have been strapped, plaster jackets applied, belts worn, etc., by women with sacral backache in whom no retroverted uterus was found, but in whom descensus of an anteposed uterus was not recognized, and on the other hand many retroverted uteri, still well held up by the cervix, have been suspended when the patient should have had treatment by the orthopedic surgeon.

The observations made at the time of operation and the results that have been obtained by operation, have led to the conclusion that sacral pain and backache may be caused by a uterus in descensus regardless of the position of the fundus, provided that by this descent the pull is transmitted to the parietal peritoneum covering the ovarian vessels, forming the so-called infundibulo-pelvic ligament, and that *with* this pull there is present a stasis in the ovarian and anastomosing veins. This possibility should be borne in mind when examining a patient, whether the fundus is forward or not, and the amount of the descensus noted. A moment taken at the time of operation to inspect structures *in situ* is well spent and may lead to a more beneficial operative procedure than by following an accustomed routine. The effect of a suspension of the uterus should be noted as far as possible before the method of performing that suspension is determined upon.

It is far from my wish to leave the impression that every uterus, whether anteposed or retroposed, needs a suspension. As a matter of fact, the more clearly I differentiate my cases, the more conservative I become as to advising a suspension. Although the fundus may be retroposed, if the cervix is well held up, these cases seldom give symptoms and do not need any operative treatment. On the other hand, one should not hesitate to suspend a uterus already anteposed, provided the drop of the cervix with following descensus is present.

In summing up the situation it seems reasonable to conclude: (1) The position of the fundus is of little importance from a symptomatic standpoint. (2) Descent of the cervix, irrespective of the position of the fundus, causes drag on the parietal peritoneum of the pelvis with congestion of the ovarian veins. (3) We must

recognize this descent as a symptomatic factor and not hesitate to suspend an anteposed uterus when such descent is present. (4) In every case, before operating, we should prove by temporary means to the patient's and to our own satisfaction, that the malposition is the cause of the patient's symptoms. We will then suspend only those few selected cases where a suspension is necessary.

Medical Progress.

PROGRESS IN OPHTHALMOLOGY.

BY EDMUND W. CLAP, M.D., BOSTON.

RUPTURE OF THE GLOBE.

Fuchs calls attention to a class of ruptures of the eyeball often not recognized as such. Of course the ordinary ruptures from a heavy blow occur usually in the sclera concentric with the corneal margin and a little back from the limbus and are 10 to 12 mm. in length. They are most frequent above or above and nasal, rarely to the temporal side. The uniform location of these ruptures in spite of the variety of trauma which causes them is due to the weakness in the region of Schlemm's canal and the place where the anterior ciliary vessels penetrate the sclera. The internal break is there, while the external is further back, the tear is oblique. But there is another variety of rupture often overlooked. These are small, seldom greater than 2 to 4 mm., and while the internal break is at Schlemm's canal the external tear is at the limbus or even partially in the transparent cornea viz. perpendicular to the cornea or even obliquely towards the center of the cornea. These ruptures too, instead of being under the conjunctiva, invariably tear the conjunctiva. Almost constantly we find a small prolapse of iris. The internal injuries are less than in the case of typical rupture, hyphaema, small tears of iris or a partial iridodialysis and sometimes a rupture of the zonula of Zinn occur. Rupture of lens capsule is shown by a clouding of the lens coming on within a few weeks. This small rupture is more common in young people than in old. The prognosis is good, infection being rare. The prolapse should be excised and the iris replaced, which can be done unless a week has passed since the injury. Besides these, cases of incomplete rupture can occur in which a break happens at the canal of Schlemm and involves some inner layers of the sclera. The diagnosis is made certain later if a thin bluish line appears concentric with the limbus, which region may later become ectatic and the eye show increased tension. The pupil is often drawn up towards the rupture too.

BRAWNY SCLERITIS.

Stephenson reports a case and gives an excellent summary of what we know about a rare disease first fully described by Schlodtman from Fuchs' clinic as Brawny Infiltration of Conjunctiva and Sclera. I quote Stephenson's review as follows: Brawny scleritis has been called annular scleritis and gelatinous scleritis. It is a disease of middle life or old age and affects men more often than women. It runs a very chronic course with exacerbations of pain, lacrymation, photophobia and increased redness. At first a painless inflammation without known cause affects the anterior segment of the globe usually in both eyes though not perhaps beginning at the same time. The early stage may involve one portion of the circumference, though sooner or later there is a girdle about the cornea not extending beyond the curvilinear line which marks the attachment of the recti tendons. The infiltration is gelatinous and succulent, diffuse and has a reddish brown hue and is not usually nodulated unless the inflammation involves the insertion of the recti muscles. In the further course of the disease the infiltration spreads into the cornea, taking the form of a sclerosing keratitis. The anterior segment of the uveal tract becomes involved usually late in the disease as indicated clinically by keratitis punctata, posterior synechiae, occlusion of the pupil, vitreous opacities and lowered tension. Many of these eyes have come to pathological examination and in general dense infiltration of the sclera with mononuclear leucocytes and some polynuclear cells was found by all observers. Destruction of some lamellae of the sclera, giant cells and areas of fatty degeneration, peri and endarteritis have been present. Verhoeff pointed out that the findings in all reported cases are suggestive of syphilis. The appearance and course of the disease are fairly typical. Gumma of the sclera is an equally rare condition and would not be as diffuse nor would it last for years without breaking down. It would yield to proper treatment. Gunn described a monocular, probably gummatous infiltration of conjunctiva and episcleral tissue associated with secondary syphilis and promptly disappearing under anti-syphilitic treatment. This occurred in young people only and showed a zone of semi-translucent swollen conjunctiva of a pink or red color surrounding the cornea. Other writers have described a similar condition but it should not be confounded with brawny scleritis.

JUVENILE GLAUCOMA.

Löhlein has made a very extensive study of juvenile glaucoma and sums up as follows: Under juvenile glaucoma we include primary glaucoma of young people, sharply distinguished clinically from congenital hydro-phthalmus and perhaps more arbitrarily from glaucoma of

adults. We may draw the line at 35 years. Löhlein had ten cases of his own and collected 82 published cases. A few cases occur between the fifth and the tenth years, but a much greater number between 15 and 20, 40% of the cases occurred here, 10 myopic and 17 hypermetropic ones. Contrary to the incidence in adult glaucoma more males were affected than females and this is true also of buphthalmos. Sixty-two percent of all the cases were glaucoma simplex. Of all the cases 50% were myopic and a third of these had a myopia of more than six diopters while in glaucoma of adults myopia appears in not more than 15%. The statement that juvenile glaucoma is frequently monocular finds no support. It occurred in one eye only in 20%, which agrees with Wecker's statistics for adults. The resistance and power of adaptation of the tissues of youth accounts for a frequently very long prodromal stage. The passing of a regular astigmatism into one against the rule with the increasing tension would tend to contradict Schmidt-Rimpler's view that the astigmatism against the rule coming on in adults with glaucoma does not arise from the increased pressure but is merely a change of advancing age. Of course many cases of glaucoma in young people follow exactly the course of the disease in adults. One-fifth of the cases have the type with a deep anterior chamber and this variety may be a late modified buphthalmos. The frequency of myopia is explained by the increased tension causing an axial myopia in these young eyes from stretching.

Hereditry plays a great rôle in our cases for although not inquired into in all cases it is mentioned in 20%. The cause of most of the cases of juvenile glaucoma which are not simply adult glaucoma occurring in youth is to be found in some congenital defect or anomaly of development. In 50% we find defects such as persistent hyaloid artery, coloboma of iris, of lens, of nerve and lamellar cataract, all of which point to some fault of development which may also give rise to the glaucoma.

In the discussion of Löhlein's paper, Fuchs gave this classification of juvenile glaucoma: (1) True glaucoma with shallow anterior chamber in members of a family in which the disease is common and appears early. This type is identical with senile glaucoma. It is hereditary and familial; (2) Glaucoma caused by congenital malformations as buphthalmos; (3) Glaucoma with deep anterior chamber and myopia; (4) Glaucoma with deep anterior chamber and fine punctate keratitis, this is a secondary glaucoma but when the precipitates on Descemet's membrane are absent, it may be taken for a primary glaucoma.

RADIUM IN OCULAR THERAPEUTICS.

Koster has secured favorable results from treatment of various eye diseases with radium and mesothorium. He began in 1905. After

trying various methods he now uses a small glass tube containing five milligrams of radium bromide or four milligrams of mesothorium, though on the lids he sometimes uses a little ebonite box. The tubes are of thermometer glass with a little bulb blown on the end. Parenchymatous keratitis is treated from one-half to an hour, five to ten sittings with intervals of three, five, or seven days, according to the irritation. The cornea is not actually touched. The results were extremely favorable though other methods of treatment were used too. Leucomata of the cornea can be much thinned and if not too thick to begin with, the sight is much improved. Scleritis is favorably influenced in connection with other treatment. Not much result was obtained in retinitis pigmentosa or optic atrophy. When the sight is blurred by products of past inflammation the radium treatment of the back of the eye has a good effect. Vitreous opacities and hemorrhages clear up considerably. Cataract secondary to uveitis or choroiditis is favorably influenced but ordinary senile cataract is probably not changed by this treatment. Naevus pigmentosus and xanthelasma both disappear under treatment and epitheliomata were very successfully treated. All these diseases are either inflammations or hypertrophic growths, which accounts for the favorable action of radium in so many conditions.

Mattice reports the treatment of an epithelioma of the cornea with the barium carbonate salt of radium. A mica box container was applied to the tumor mass for six minutes and in a week a twelve minute application was made. Six weeks after the first treatment the tumor remains were given a fifteen minute exposure. The tumor which had covered the cornea and involved the conjunctiva had disappeared and the vision had improved from light perception to twenty-seventieths.

ETIOLOGY OF CHRONIC UVEITIS.

De Schweinitz at the seventeenth International Congress of Medicine discussed the pathogenesis of chronic uveitis excluding the syphilitic, tubercular and sympathetic varieties, deriving his material from an analysis of the literature for ten years past, an investigation of the views and experiences of American colleagues and a study of gastro-intestinal and auto-intoxication in relation to this affection. The frequency of primary uveitis varies from .9% to 2.4% and it seems more common in northern than in southern climates. As Stephenson said probably every case is of septic or of toxic origin. The infection may be exogenous or endogenous. After careful analysis of all described etiological factors he reaches the following general conclusions. Acute articular rheumatism is rarely if ever a cause of uveitis but various types of polyarthritides and myalgia may be associated with it, and be manifestations of

the same toxemia. We should not yet abandon the view that the same cause that produces gout may also produce a chemical inflammation of the uveal tract. It is possible that diabetes more rarely may do the same. There is bacteriologic and clinical evidence that the majority of cases of uveitis are caused by micro-organisms or their toxins. The gonococcus and the staphylococcus are the most important and the primary source of the latter is most frequently a chronic septic process in the mouth, tonsil, naso-pharynx, accessory nasal sinuses, in the uterine cavity or in the skin (boils, etc.) It is probable that in most instances living bacteria reach the uveal tract and they and their toxins cause the varieties of inflammation classified under the term uveitis. Indican in excessive amounts in the urine indicates intestinal putrefaction but other analyses must be made and if intestinal putrefaction dependent upon bacterial activity is present there is a source from which toxins may arise to cause uveitis. A thorough investigation of every patient's metabolism may lead to the finding of a group of diseases of the uveal tract caused by infections of bacterial origin arising in the intestinal tract.

DILATATION OF PUPIL FROM CORNEAL SCAR.

Zur Nedden has noticed that in superficial injuries leaving a large central scar of the cornea, the pupil of the injured eye often becomes larger than the pupil of the sound eye.

His cases occurred mostly after infected ulcers of the cornea which left a central dense scar covering the normal pupillary area. Of course anisocoria frequently occurs without any apparent cause or it may be due to diseases of the nervous system. But his cases had been under observation either before the injury or after the scar was freshly formed and no difference in the size of the pupils observed. The author carefully excluded any disease that could cause the anisocoria in his cases, or any weakening of the pupillary muscle from use of a mydriatic. In all of his cases the reactions of the pupil were prompt and normal in both eyes but the pupil of the affected eye was one and one-half to two millimeters larger in diameter and preserved this relative difference in shadow or in light or during convergence. This difference in size of the pupils came on only after a year or more; it was not seen three or four months after the injury. It was not observed in peripheral or eccentric scars, or in such large central ones that the eye was practically blind. The vision in these cases was decidedly improved by the larger pupil and this without any thinning of the scar. In two cases where the scar did get thinner the pupil remained larger. The author thinks it may be an attempt of nature to get better vision. At any event, it does not occur in every eye where it might be expected.

PROGRESSIVE FAMILIAL MACULAR DEGENERATION.

Darier has published the history of five cases of progressive familial macular degeneration and reviewed the literature. Stargardt in 1909 gave the history of two families, one of four persons all affected, and a second in which three out of five were affected. In these families there was no other familial ocular disease, the parents were well and not related. The trouble began with a central scotoma for red and green at 12 to 15 years without any fundus lesion, next came a relative scotoma and then an absolute one for white, and finally total loss of central vision. The periphery of the field remained normal for white and colors. The ophthalmoscopic signs began with an irregularity of pigmentation in the macula, of greyish yellow spots. Blotches and whitish streaks appeared and pigment spots like osteoblasts. The yellowish spots ended by fusing into a single horizontal oval spot varying in size from one-third the papilla to two or three times its size. This spot was outlined by pigment and attained its maximum about the twentieth year and then remained a long time stationary. Jennings in 1909 reported three cases in the same family, the parents being cousins. Batten had a similar affection in two brothers out of seven children. Lutz in 1911 reported a family of nine children, four of whom rapidly lost their vision about the twelfth year. Little yellow-gray spots mingled with pigment were seen in and about the macular region. Stirling in 1912 reported three cases in one family and Nettleship, 1909, and Doyne, 1899, have seen similar cases. Stargardt recently gave three new cases from one family. Now from 23 cases altogether, we may describe the course of this disease. The affection beginning about the twelfth year is insidious and progressive though rarely sudden in onset. In Darier's five cases it was slow in onset and has now been under observation 20 years. One may find no lesions of the fundus at first, or at times macular changes may occur before vision is affected. Central vision is always impaired, fine characters are lost first. The two eyes are attacked at the same time and the vision is nearly the same in each eye and fails equally. In some cases the loss of vision is rapid for a time and then remains at the same degree for a long period; in others, the failure is gradual for from 10 to 30 years. Lesions outside the macular region are exceptional. Stargardt thinks the process is one of degeneration resembling that in idiotic family amaurosis. Batten's two cases are of the maculo-cerebral type which begins early and goes into dementia. If the macular changes do not appear till 12 or 14, the brain is not affected. Syphilis may be safely excluded as a cause. This hereditary fault has not yet been found in several generations.

THE ELLIOT OPERATION.

The Elliot operation of trephining the sclero-corneal margin for glaucoma has received a great deal of attention this year and its limits are being defined. The papers on this subject are so numerous (over 200 this year alone) that only a few of the more important can be quoted. The more conservative authors would limit the operation to cases of chronic glaucoma which cannot be controlled by miotics, but the majority would advise trephining in all chronic glaucomas, and many favorable results have followed this operation in acute glaucoma, but iridectomy is preferred by the majority for acute cases. The dangers of the Elliot operation seem to be, injury to lens at time of operation, detachment of chorioid, so-called quiet iritis during the healing, and late infection via the conjunctiva over the trephine hole. Stephenson discusses some causes of failure after the operation; occlusion of the trephine opening by proliferation of tissue, or blocking by iris or ciliary body, lens, or vitreous; and intraocular hemorrhage which is rarer than after iridectomy. Detachment of the chorioid is usually temporary and of course occurs also after iridectomy, Lagrange operation or even after cataract extraction. Quiet iritis occurs, too, after ordinary iridectomy though often overlooked. Its evils may be avoided if atropine is used 24 hours after operation if the pupil is not well dilated or active. The accident of having the trephined disk drop into the anterior chamber has happened without evil results several times but Stephenson had a case which was followed by severe irido-cyclitis. As the operation is more used more reports of late infection are published.

Col. Elliot's latest article deals with some points of technic and with some objections to the operation. He believes that the vesicular type of filtration scar is to be avoided and when obtained is due to faulty methods of making the flap or splitting the cornea. The fluid escape should not be confined to a small area at and just about the corneal opening. The vesicular scar may be abraded during movements of the globe and it may give rise to infection from any organism that may be in the conjunctival sac. The flap should be as large as possible, beginning at the fornix above and the extremities kept well away from the limbus. Next only a small area of the flap must be actually dissected up, narrowing down at the limbus to just enough to give room to split the cornea and place the trephine. If the tissue at the sides is undamaged there will be normal subconjunctival tissue for extended filtration and the flap will be held in good position when released so as not to need a stitch. As we approach the limbus we should work a little deeper so as to make the base of the flap thick enough to avoid a vesicular scar, and so, too, the cornea should be split along the inter-lamellar spaces, not merely

cutting under the epithelium and Bowman's membrane. We cannot always avoid getting scars where the subsequent filtration is much more abundant in the region of the trephine hole, though this is not ideal, but we should not get a thin walled projecting vesicle whose cavity is in direct communication with the interior of the eye. Impaction of uveal tissue in the wound results from: (1) Undue traction during iridectomy, avoided by doing the iridectomy when the disc is cut, both disc and iris being seized together and cut off with the same snip of the scissors. (2) Sudden movement of the patient. (3) Forward movement of structures within, which mechanically push the iris into the trephine hole. (4) Iris being washed into the opening by the aqueous, this occurring after the patient has left the operating table. Col. Elliot thinks an iridectomy, a buttonhole opposite the trephine hole, should always be done. He thinks by using a 2 mm. trephine and not cutting the disc completely around we can regulate the size of the opening by completing the cut with the scissors, taking only part of the disc if we need only a moderate degree of filtration. The disc should be cut through completely at the corneal edge and hinged to the scleral side. Late infection has been reported in 14 cases so far and a great many trephinings have been done. Most of the cases are desperate and some risk is justifiable and the operation is not alone in having this danger.

THE EYE SYMPTOMS OF GENERAL PARALYSIS.

Uthoff from a large experience sums up the eye symptoms occurring in general paralysis as follows: Optic atrophy in 8%, optic neuritis in 2%, Argyll-Robertson pupil in 44%, unequal pupils in 22%, miosis in 25%, irregular pupils in 25%, ocular muscle paralysis in 10%. This incidence of optic atrophy is the same as in tabes. In all cases of progressive optic atrophy he has found in 95% signs of either tabes or of general paralysis and some of the excepted 5% had escaped from observation, which means that progressive optic atrophy is diagnostic of either tabes or general paralysis. Cases that remain confined to one eye are rare and probably not true progressive atrophy, but are secondary to syphilis of the brain. In both tabes and general paralysis the optic nerve changes are the same and are always associated with changes in the spinal cord. Hemianopsia is rare and suggests syphilis of the base. Optic neuritis and choked disc are not due to the general paralysis, but to basal syphilis and to hydrocephalus. Uthoff has not found characteristic macular changes. A unilateral Argyll-Robertson pupil has the same diagnostic importance as a bilateral. In recognizing anisocoria Uthoff did not take into account slight differences in size of the pupil, which are common in healthy individuals as well as are slight irregularities of the pupil.

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Clinical Department.

PAROTID FISTULA FOLLOWING MASTOID OPERATION.

BY PHILIP HAMMOND, M.D., BOSTON.

ALTHOUGH it is well known that the mastoid operation is beset with difficulties, and that in performing it numerous structures may be injured, it would appear that the parotid gland is not subject to such injury. One does not think of it as lying in the course of the incision, and the writer has not been able to find any reference to it as one of the dangers to be avoided. While apparently unknown as a sequel to the mastoid operation, fistulae of the parotid gland are occasionally encountered by the general surgeon, and are considered to be extremely difficult to heal. The existence of such a fistula may be of exceeding annoyance to its possessor,¹ particularly in the case of a woman. The constant discharge of saliva renders one objectionable to his fellowmen, and the great increase during mastication necessitates satisfying hunger in solitude. The amount of fluid excreted may assume considerable proportions. Duphenix collected from a salivary fistula seventy grams of fluid in fifteen minutes, and a patient of Jobert's discharged several cupfuls in twenty-four hours. Attempts to close the fistula by cauterizing are recommended by some authorities before resorting to surgical intervention. The latter does not invariably cure, as it is extremely difficult to obtain a wound free from infection. Several successfully-operated cases are reported by Armstrong.²

The following case was brought to the attention of the writer at the Massachusetts Charitable Eye and Ear Infirmary, on July 7, 1913:

M. G., female, 9 years old. Five years before had had mastoid operation on right ear. Both ear and mastoid had healed in due course. The mother stated that during the past five years there had been a persistent discharge of watery fluid from the right cheek.

Examination revealed that the drum was healed. There was a depressed scar over the right mastoid extending nearly to the angle of the jaw. At the extreme lower end of this incision was a fistula so small as to be practically invisible. It was noticeable only as one saw fluid exude from it. The discharge was slight but constant, and was markedly increased while eating, or while chewing gum. The patient was kept under observation more than a week while exhaustive tests were made to establish beyond a doubt the fact that it was really a parotid fistula. On several occasions, potassium iodide ingested plain, and in capsule gave the starch reaction from the discharge within twenty minutes.

On July 22, 1913, under ether a piece of horse-hair was inserted into the fistula as far as it would go, about one-fourth of an inch. Using this as a guide, the tract was extirpated *en masse*, uncovering gland tissue. The incision was closed with three horse-hair sutures. The wound healed by primary union, and the sutures were removed on the fourth day.

The patient remained under observation until July 30, the eighth day following operation, when she was discharged from the hospital cured. I received a note from her parents on Nov. 24, 1914, in response to an inquiry, stating that she had remained well. This case is reported because of its exceeding rarity.

REFERENCES.

- ¹ System of Surgery, Choice, Vol. 2, p. 236.
² Am. Practice of Surgery, Vol. vi, p. 298.

Book Reviews.

Essentials of Physiology. By F. A. BAINBRIDGE, M.A., M.D. (Cantab.), D.Sc. (Lond.), F.R.C.P., and J. ACWORTH MENZIES, M.D. (Edin.) With 134 illustrations. London: Longmans, Green and Company. 1914.

This excellent small text-book aims to compile in concise form the fundamental facts and principles of physiology for medical students. So far as possible, histologic details, descriptions of chemical and experimental methods, and matters of purely historic interest have been omitted. The Basle nomenclature is introduced throughout in brackets. Most text-books of physiology are so overburdened with details of the sort here omitted, as to be not only wearisome, but sometimes quite unreadable. The authors of this volume have shown their wisdom as well as their scientific knowledge and literary skill, by producing a convenient text-book in physiology which is actually attractive and interesting to read.

Cunningham's Manual of Practical Anatomy. Revised and edited by ARTHUR ROBINSON, Professor of Anatomy in the University of Edin-

burgh. Sixth edition. New York: William Wood and Company. 1914.

This sixth and latest edition of Cunningham's dissecting manual is welcome to students and teachers of anatomy. The text has been wholly revised, some of the figures altered, several new figures added, and a series of radiographs introduced. The chief alterations are in the section on the brain, which has been rearranged and largely rewritten. The first volume is illustrated with 249 figures in the text and 22 plates, 60 of which are in colors, and the second volume with 267 illustrations in the text and 11 plates. The Basle nomenclature is used throughout. The work thus adds to its former distinguished merits others which still further increase its already established standard of excellence and reliability.

Infant Feeding and Infant Metabolism. A Foundation for the Practitioner. By LEO LANGSTEIN and LUDWIG F. MEYER, Berlin. With 46 illustrations in the text. Second and third editions. Revised and enlarged. Wiesbaden: J. F. Bergmann. 1914.

This second and third edition of a standard German text-book on infant feeding has been delayed by the authors to enable the decision of various points in conflict and to permit the digestion and assimilation of the abundant additional material at their disposal. Fundamentally this work represents the pediatric principles upon which American methods of infant feeding are based, yet it is so cumbered with theoretic and laboratory details as hardly to be of available value to English-speaking practitioners.

Animal Experimentation and Medical Progress. By WILLIAM WILLIAMS KEEN, M.D., LL.D., Professor Emeritus of Surgery, Jefferson Medical College, Philadelphia. Boston and New York: Houghton Mifflin Company. 1914.

Mr. Stephen Paget's "For and Against Experiments on Animals" was reviewed in the issue of the JOURNAL for Nov. 14, 1912 (Vol. clxvii, p. 701). Dr. Keen's book is of much the same purpose and type. It consists of a series of fifteen essays, on topics connected with vivisection, which have previously appeared in various publications, one of them, on "The Influence of Antivivisection on Character," in the JOURNAL of May 2 and 9, 1912. There is a characteristic introduction by President Eliot. Like Mr. Paget's, this work "should prove a useful source of authoritative material for future defense of animal experimentation." Dr. Keen's facile literary style makes his book not only valuable but delightfully attractive.

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ANNOUNCEMENT.

THE announcement attached to the front cover-page of this issue calls attention to various changes in the administrative and editorial organization of the JOURNAL.

The appointment of a committee of consulting editors, it is believed, will result in an increased value of the editorial pages to the profession. From week to week members of this committee will contribute editorials commenting upon or interpreting important technical original articles appearing in the columns of the JOURNAL. They will also consult upon all matters of policy, so that the editorial conduct of the JOURNAL will represent, not the opinion of a few, but the collective judgment of a number of experts.

From its continuing affiliation with the Massachusetts Medical Society, the JOURNAL, as official organ of that association, will publish its proceedings, notices, news, and from time to time such editorial communications as the president or other officers of the society may wish to make to the profession.

An arrangement is also in process of development, whereby preliminary communications, and reports of clinical and laboratory research work done at the Harvard Medical School and allied hospitals will appear in these columns.

Editorially the JOURNAL will continue its policy of non-partisan comment on medical legislation and other current events of medical importance, seeking fairly to represent all sides of every question, avoiding personal controversy, aiming judiciously to reach wise decisions, to encourage tolerant discussion, and impartially to guide professional opinion. The new editor-in-chief assumes his duties with most grateful and appreciative respect to his predecessors in office; with reverence for the honorable traditions of the past, with consciousness of his responsibilities in the present, with hope that in future the JOURNAL, changing and adapting itself to the needs of new occasions, yet retaining its intrinsic and original character, may without interruption continue worthily to represent and serve the medical profession at home and abroad.

THE TESTS FOR MEMBERSHIP IN THE MASSACHUSETTS MEDICAL SOCIETY.

It is provided in the Acts of the Commonwealth that "no person shall become a member of the Massachusetts Medical Society except upon an examination by the censors of said society." It is further provided in the by-laws that the censors of each District Society shall meet at least twice a year for the examination of applicants, and that applicants shall not be considered as possessing the requisite qualifications for fellowship unless approved by at least three (of the five) censors. General uniformity of plan of examination in the several districts is secured by a Board of Supervising Censors, one being named by each district, who meet annually for the purpose of preparing the papers.

Most Fellows have joined the society shortly after completing their medical curriculum and at a time when they are probably best fitted to stand a written test in all of the ten or more subjects in which the censors usually examine. This examination is one of three, which for most men come in rather close succession, and which are all somewhat similar in scope,—the other two being the test set by the medical school for the degree, and that given by the State Board of Regis-

tration for the legal right to practise. The last of these three is the only one which is absolutely indispensable for medical practitioners in Massachusetts, where, unfortunately, by law the Board of Registration may not require the possession of a diploma as evidence that the candidate has received a proper medical or premedical education.

Membership in the State Society, however, carries with it so many advantages, educational, legal, ethical and social, that all qualified practitioners should seek it. What shall be done in the case of physicians who by reason of removal into the state after some years of practise elsewhere, or from neglect to make more timely application, find themselves in mid-life, while legally qualified practitioners, outside the pale of the society? Shall such persons necessarily be subjected to exactly the same kind of examination as the young men just out of the school? Fortunately these questions have been answered in the negative by many boards of censors in the past, thereby securing to the society many brilliant men, professors in our medical schools, public health officials and the like, who, after years spent in the pursuit of some branch of special medical study, would have forgotten so much of their unused mental equipment as to be unable to pass a written examination in all branches and who would frankly refuse to try to do so.

In the less conspicuous ranks of the profession there are a good many men who have been doing creditable, honest work in some branch of medicine, acceptable to their patients and approved by their professional neighbors. The censors have agreed that one-half the total value of the examination shall be given to written and one-half to oral tests. In the former category alternative questions might be proposed to these candidates. Every live doctor, after ten years of practice, may know less about some branches than he did on graduating, but should know much more about others. Give him a chance to select the subjects he will write about. And in the "oral" part of the test let the evidence both from himself and his medical neighbors count largely as to his fitness for membership. Men who have worked in the same town or on the same street with him should be able to give a pretty good idea of what manner of man he is. The Board of Censors is responsible eventually for his acceptance or rejection, but the collection of evidence about his work and character, while it may involve more labor than a formal written test, may yet be the most useful part of the

"examination." Moreover, while the law provides that the censors shall "examine," it leaves to their discretion what kind of examination in special cases is best adapted to learn the candidate's fitness.

It should be borne in mind that in many of the neighboring states the sole criteria for membership in the county and state societies are, (1) graduation from a good medical school, and (2) the passage of the state board examination, being two out of the three tests which, as above remarked, most of the qualified practitioners in Massachusetts must pass. Some of the censors are of the opinion that this would be an adequate requirement here. In that case the duty of the censors to "examine" would resolve itself into the verification of these two sorts of credentials and the investigation of the moral character of the candidate.

While the present system remains, however, it can be rendered more elastic, without any lowering of the intellectual or moral standard hitherto required, by simply recognizing in some cases the propriety of changing the methods of finding out the facts. The element of character should weigh heavily. In ten years of practise the character of a man has become pretty well fixed and can be generally better known than that of the neophyte who has been admitted to membership before he has had time to do much, good or bad. Only let us remember that if a person is to be admitted to the society in any degree upon his record, that record should be without a flaw. The advertiser, the fee-splitter, the abortionist, the pretender, should find the gate closed, the wall unscalable.

CHARLES F. WITHINGTON, M.D.,
President.

PTOSIS IN CHILDREN.

AN article on "Ptosis" by Dr. J. T. Williams, appearing in this issue of the JOURNAL, is a valuable review of the general subject and of methods of treatment.

It must be acknowledged that ingenious and skilful as have been the surgical attempts radically to correct the condition in adults, the results have not been as important or as uniform as could be desired. Other methods, medical, postural, mechanical, are purely palliative; and

if surgery fails we are forced to admit that well-marked cases will probably remain well-marked cases to the end of their days, to be relieved, perchance, of some of their discomforts, but not cured of the underlying condition. We speak now of the congenital visceral ptosis not of the acquired. The latter type while sometimes productive of quite as serious symptoms is more capable of cure.

Quite apart from the question as to whether congenital visceral ptosis is productive of symptoms in the child, its surprisingly common occurrence is a matter proved beyond cavil. It may be recognized not only by Roentgenological examination, but also by the general physical characteristics of the child. What shall we do about it? We may leave it alone and wait for growth and the upright position to increase the abnormality. On the other hand, after the child has assumed the upright position and an actual ptosis or a tendency to it is evident, we may strive by means of the development of muscles, by proper posture, and if necessary by means of mechanical supports to maintain a normal position of the viscera which growth will make permanent.

Though the symptom-complex of the condition frequently is associated with digestive upsets and malnutrition in children, it is in later life that we may expect fairly constant lack of physical endurance, the common "dyspepsias," and the occasional mental aberrations. We must admit the seriousness of the condition in the adult and the uncertainty of relief. If we can be persuaded of the possibility of cure in the child, surely this becomes a matter of preventive medicine whose importance can be measured only in terms of succeeding generations.

PROPOSED TRANSFER OF BOSTON QUARANTINE SERVICE.

IN last week's issue of the JOURNAL we commented editorially on the proposed transfer of the Boston Quarantine Service from municipal to federal control. This transfer was approved by the Boston Association for the Relief and Control of Tuberculosis. A special hearing on the subject was held on Friday, January 1, before the committee on ordinances of the Boston City Council. In a communication addressed

to this committee on December 28 the Boston Finance Commission makes the following statements and expresses the following opinion, which, as evidence of the expert judgment of this body, seems of value in determining the attitude of others on this question.

"On April 21, 1914, the Finance Commission recommended to the executive committee of the City Council that the quarantine service of the Port of Boston be transferred to the United States Government.

"The Commission said in that report, 'The service (quarantine) of Boston is almost, if not quite, as important to adjacent cities and towns, to the state and to adjoining states, if not to the entire country, as it is to the port of Boston. Recent acts of Congress have recognized the fact that quarantine service is a matter of national concern. The Act of Congress of Feb. 15, 1893, provides that "whenever the proper authorities of a state shall surrender to the United States the use of the buildings and disinfecting apparatus at a state quarantine station, the Secretary of the Treasury shall be authorized to receive them and to pay a reasonable compensation to the state for their use if, in his opinion, they are necessary to the United States."' Under this provision various cities and states have transferred their quarantine functions to the general government. The only cities of any importance which have not done so are New York, Boston and Baltimore.

"While Baltimore maintains its own quarantine service, the federal government also has a station, located at Cape Charles, and thus has direct control over all quarantine cases before the vessels reach Baltimore. The only cities, therefore, that have no federal supervision over quarantine cases are New York and Boston, and inasmuch as the commission understands that arrangements are about to be perfected for the transfer of the city of New York quarantine service to the Washington Government, Boston will be the only city in the country that is not under federal control.

"Under the federal statutes property belonging to the local service, when transferred to the United States, is paid for by the latter, and if a special appropriation of Congress is necessary before purchase a rental is paid until such appropriation is made. Under these provisions the quarantine station at Boston, including the boats and other property, may be sold to the United States, and the competent men now engaged in the local service may, under proper observance of civil service rules, be transferred to the public health and marine hospital service. The transfer would make for uniformity and efficiency in quarantine work; would free the commerce of Boston from the payment of quarantine charges, and would relieve the city of a large expense.

"It is the opinion of the best medical authorities that the war conditions existing in Europe will result in the spread of contagious diseases to the United States. Such a condition in the near future further emphasizes the recommendation made by the Finance Commission.

"The present quarantine service of Boston is inadequate to cope with the contagious diseases which will soon reach the port of Boston, and there must be a large and immediate expenditure of money to equip the present quarantine service to meet this emergency.

"The personnel of the staff is competent, but the service of the federal government would be better, because of the fact that the latter would be enabled to work in unity with the quarantine service of the whole country.

"The Finance Commission repeats its opinion as contained in its report of April 21, 1914, and recommends that both the present ordinance abolishing the quarantine service of the Board of Health, and the order providing for the transfer of the quarantine property to the United States Government, now pending before your honorable committee, be reported favorably."

The executive committees of the Norfolk and Suffolk Districts of the Massachusetts Medical Society, and of the Boston Homeopathic Medical Society, representing a membership of about 1400 physicians, have also unanimously endorsed the proposed quarantine transfer.

AMERICAN COLLEGE OF SURGEONS.

THE third convocation of the American College of Surgeons was held in Washington, D. C., on November 16, 1914, with the President, Dr. J. M. T. Finney in the chair. In his introductory remarks Dr. Finney stated that the subscriptions to the proposed endowment fund of \$1,000,000 already amount approximately to \$250,000. The Secretary, Dr. Franklin H. Martin, in presenting the roll of candidates, conveyed to the Fellows the greeting of Sir Rickman Godlee, president of the Royal College of Surgeons of England, with the gift from him of a gavel designed and used by Lord Lister. The list of new Fellows numbered 646. The honorary Fellows were Dr. Dudley P. Allen of Cleveland, Ohio; Dr. William C. Gorgas, U. S. A., of Washington, D. C.; Dr. Lewis S. Pileher of Brooklyn, N. Y.; Sir Thomas George Ruddick of Montreal; and Dr. J. William White of Philadelphia.

The fellowship address was delivered by Dr. Edward H. Bradford of Boston, Dean of the Harvard Medical School. Speaking on "The Higher

Education in Surgery" Dr. Bradford expressed the opinion that the American College of Surgeons should become an important agency in the advancement of American surgery through its influence on the better education and training of surgeons.

After concluding remarks by Dr. Finney, the meeting adjourned to an informal reception. At the first annual meeting of the college held on the afternoon of the same day, a number of committees were appointed and the report of the committee on examination for membership was received. This report is printed at length in another column of this issue of the JOURNAL. There were addresses by the secretary, by Dr. Finney, Dr. John B. Murphy of Chicago, Dr. F. D. Gray of Jersey City, N. J., Dr. John W. Long of Greensboro, N. C., and Dr. G. Sterling Ryerson of Toronto.

The following officers were elected for the ensuing year:

President—Dr. J. M. T. Finney.

First Vice-president—Dr. W. W. Chipman.

Second Vice-president—Dr. Rudolph Matas.

General Secretary—Dr. Franklin H. Martin.

Treasurer—Dr. A. J. Ochsner.

LEGISLATION ON CARE OF TUBERCULOSIS IN MAINE.

AT the opening of the Legislature of the state of Maine, on January 6, a bill was presented before that body providing for the establishment of a sanatorium for the treatment of persons infected with tuberculosis who are unable to pay for their care. There are already several state institutions for the tuberculous in Maine, but none where poor patients can go without charge.

In their estimates for the years 1915 and 1916, which were filed at the office of the state auditor in Augusta, Me., on December 26, the directors of the Maine Association for the Relief and Control of Tuberculosis advocated the establishment of an institution for advanced cases and also of a commission to study and direct the work of tuberculosis prevention.

The proposed act referred to above, aims to carry out these recommendations. It provides for an institution to be known as the Maine State Sanatorium for Tuberculous Patients and to have a government vested in a board of hospital trustees.

"The proposed act also provides that all persons who are proper subjects for this sanatorium, who are unable to pay the fixed charges of the institution, upon recommendation of the municipal officers of the city or town of which the patient is a resident, may be admitted free of charge. All other persons who are proper subjects shall pay \$4.50 per week.

"Under the bill, the board of hospital trustees shall select and purchase a suitable site for the sanatorium and shall proceed as soon as practicable to erect and furnish and equip suitable buildings. The bill carries \$100,000 to be used within the next two years.

"As an alternative for the state to appropriate \$35,000 for the year 1915 and \$55,000 for the year 1916 for the sanatorium at Fairfield, the directors suggest that the state take over this institution, which has cost the Association about \$25,000, the state to pay approximately \$15,000 or a sum equal to the estimated indebtedness at the beginning of the year 1915 and that the institution at Fairfield be one of several of the kind which should be supported and managed by the state."

In the conclusion of their report the directors of the Maine Association for the Relief and Control of Tuberculosis speak as follows of the tuberculosis situation in that state:

"The fact that approximately 10 per cent. of the deaths in the state are from tuberculosis entitles this work and the suppression of this plague to an immediate and earnest consideration.

"The five years' experience of the members of this association has convinced us that the needs of the state in handling the tuberculosis situation are infinitely beyond the ability of private institutions or individuals to handle.

"The number of patients at the Fairfield Sanatorium is thirty. The present average cost of a patient is about \$15 per week. With added equipment to care for sixty patients, and funds with which to take advantage of cash discounts and other economies, the cost could probably be reduced to \$10 or \$12 per week, which is the average cost in some of the large institutions in Massachusetts.

"Many applications have to be refused because patients pay but \$2 or \$3 per week, and a large number are refused because they can pay nothing. Many other applicants are refused because they are in an advanced stage of the disease and cannot be well treated in the same building with early cases."

MEDICAL NOTES.

LONDON DEATH-RATES IN NOVEMBER, 1914.—Statistics recently published show that the total

death-rate of London in November, 1914, was only 14.6 per 1000 inhabitants living. Among the several districts and boroughs the highest rate was 20 in Finsbury, a populous central slum, and the lowest was 10.4 in Lewisham, an open southern section of the city.

APPOINTMENT OF DR. MOYNIHAN.—It is announced that Dr. Sir Berkeley Moynihan, of Leeds, England, has been appointed consulting surgeon with the British forces overseas, and left London for France on Dec. 4, to assume his duties.

AMERICAN UNIVERSITY REGISTRATION STATISTICS.—The registration statistics of thirty American universities for 1914, published in the issue of *Science* for Dec. 25, show that, including summer-session enrolment, the first eight are Columbia, California, Chicago, Wisconsin, Pennsylvania, Harvard, Michigan, and New York. Exclusive of summer students, the order is Columbia, Pennsylvania, California, Michigan, New York and Harvard. The largest medical school is that of New York, with 439 students. The Michigan medical school has 378, Johns Hopkins 374, Columbia 378, Tulane 343, Harvard 321, Pennsylvania 290, Illinois 287, and Ohio 281.

SANITARY PROGRESS IN NEW YORK.—Report from Albany, N. Y., states that on Dec. 25 the governing board of the state board of health issued an order forbidding the use of common drinking-cups and roller-towels in public places, and fixing sanitary rules to govern barber shops, manicure parlors, and chiropodist offices. This order is essentially the same as those already adopted in several other states and enforced on interstate railroad trains.

MEDICAL STUDENTS IN SWITZERLAND.—In the summer of 1914 the total number of medical students in the Swiss universities was 2205, of whom 327 were at Bâle, 117 at Berne, 879 at Geneva, 316 at Lausanne, and 566 at Zürich.

OREGON EUGENIC MARRIAGE LAW.—An item in the Philadelphia *Bulletin* notes that a recent convention of county officials in Oregon voted its unanimous disapproval of the present so-called eugenic marriage law in that state, requiring a physical examination of all male applicants for matrimonial licenses. Its repeal is advocated on the ground that it has proved ineffective and even harmful.

THE EPIZOOTIC OF FOOT AND MOUTH DISEASE.—On Dec. 23 the federal quarantine for foot and mouth disease among cattle was raised from the following counties of Illinois: Alexander, Bond, Calhoun, Crawford, Clay, Clinton, Edwards, Effingham, Fayette, Franklin, Gallatin, Hamilton, Hardin, Jackson, Jasper, Jefferson, Jersey,

Johnson, Lawrence, Macoupin, Madison, Marion, Massac, Montgomery, Monroe, Perry, Pope, Pulaski, Randolph, Richland, St. Clair, Saline, Union, Wabash, Washington, Wayne, White and Williamson.

In the following counties, upon which the quarantine is modified, cattle may be received and shipped for immediate slaughter: Brown, Clarke, Christian, Cumberland, Greene, Pike, Shelby and Scott.

An absolute quarantine was ordered against Tuscola county, Mich., and Tioga county, N. Y.

In Connecticut the quarantine has been modified over all the state, except the counties of New Haven and Hartford, to permit the cattle to enter for any purpose and to be shipped out for immediate slaughter.

POLIOMYELITIS IN VERMONT.—The weekly report of the United States Public Health Service for Dec. 18 states that during October, 1914, there were 55 cases, and during November, 9 cases of poliomyelitis in Vermont.

CHOLERA IN SILESIA.—During the fortnight from Nov. 15 to 28 inclusive, 1914, 33 cases and 9 deaths of Asiatic cholera were reported among troops of the Austrian army in Silesia, Germany.

TUBERCULOSIS CAMPAIGN COSTS TWENTY MILLIONS.—The annual statistical statement of the National Association for the Study and Prevention of Tuberculosis, issued on Jan. 2, shows that over \$20,500,000 were spent last year in the campaign against tuberculosis in the United States. Of this sum, 66.8 per cent. was derived from public funds, either federal, state, county or municipal, and the remainder was contributed by private philanthropy.

Institutional care and treatment of consumptives in hospitals and sanatoria makes up the largest share of the total expenditures. More than \$17,300,000 were spent for this purpose, with an additional \$925,000 for special treatment of tuberculous insane and prisoners. These figures include not only the cost of maintenance, but in some instances the cost of construction of institutions. Anti-tuberculosis associations spent the next largest sum, amounting to a little over \$900,000. Care of patients in dispensaries and by visiting nurses cost almost as much, approximately \$860,000. The growth of the open air school movement is shown in the fact that last year more than \$300,000 were spent for this purpose, as against \$10,000 expended five years ago. State and city boards of health spent \$200,000 directly on tuberculosis work.

In the last five years, the percentage of money spent from public funds has steadily increased from 53 per cent. in 1909 to 69.3 per cent. in 1913, and 66.8 per cent. last year. The National Association considers this increase significant, since it indicates a shifting of the burden of in-

stitutional care of the consumptive from the private purse to the general public purse where it rightly belongs.

New York spent more money last year in the tuberculosis campaign than any other two states in the Union, due largely to the increased and rapidly-developing movement for city and county care of the tuberculous. Pennsylvania, which has occupied second place for the past four years, was superseded last year by Illinois, with Massachusetts in fourth place and Colorado in fifth place.

EUROPEAN WAR NOTES.—In a recent letter to the public daily press, Mr. Robert Bacon has called renewed attention to the needs of the American Ambulance Hospital at Paris:

"The American Ambulance Hospital in Paris has cabled an urgent appeal for more volunteers to drive motor ambulances in France; 180 men and 100 ambulances are wanted as soon as possible.

"A word of explanation of what the American hospital is: Its present organization consists of the main hospital at Neuilly, on the outskirts of Paris, located in the Lycée Pasteur building, which had just been completed at the outbreak of the war. It is at present equipped with about 450 beds. A second hospital unit has also been established at a point nearer the firing line, about 20 miles from Paris. This contains about 200 beds.

"In addition there is a flying ambulance corps, consisting of about 60 motor ambulances.

"To enlarge this work and increase its effectiveness a call for volunteers is now made. The reports from the surgeons working in the hospital show that the majority of the cases brought to them have been so delayed in reaching medical assistance that gangrene and blood poisoning have frequently unnecessarily set in, and that some of those only slightly wounded have succumbed because of inattention before reaching the hospital.

"To date each ambulance has averaged the transportation of over 50 wounded a day, and there are many emergency calls when they are pushed to the fullest extent of their endurance. It is not especially easy work, and every volunteer is subject to the military discipline of the organization."

Report from Philadelphia on Dec. 28 states that Dr. J. William White, a trustee of the University of Pennsylvania, has announced that the university is preparing to send to Paris eight or ten surgeons to take charge of a ward of the American Ambulance Hospital, endowed by Philadelphia citizens.

Report from Cleveland, Ohio, on Dec. 28 announced plans for an expedition to be sent to the American Ambulance Hospital, Paris, by the Western Reserve Medical School and Lakeside Hospital, and on Dec. 30 this expedition sailed for Europe. The expedition is to be

financed by trustees and other friends of the two institutions. Its personnel will consist of Dr. George W. Crile, professor of surgery, Western Reserve University, and visiting surgeon of Lakeside Hospital; Dr. Samuel L. Ledbetter, Dr. Edward F. Kieger and Dr. Le Roy B. Sherry, now of the resident staff of Lakeside Hospital, who will act as assistant surgeons and clinical assistants; Dr. Lyman F. Huffman of the resident staff of Lakeside Hospital, who will act as clinical pathologist; Dr. Charles W. Stone, assistant professor of nervous diseases in Western Reserve University, and visiting neurologist of Lakeside Hospital; Miss Agatha Hodgins and Miss Mabel L. Littleton, anesthesiologists; Miss Iva B. Davidson and Miss Ruth J. Roberts, from the operating-room staff of Lakeside Hospital.

Dr. Crile takes with him also, to assist in a special research, Miss Amy F. Rowland, B.S., Mt. Holyoke College, and William J. Crozier, Ph.D., Edward Austin Fellow of the department of zoölogy of Harvard University.

On Jan. 1 the total of the New York Belgian relief fund amounted to \$697,416.17; the New York Red Cross fund to \$415,019.83; the German relief fund to \$323,050.00; and the American Jewish relief fund to \$237,881.93.

The New England Belgian relief fund amounted to \$164,086.89; the Massachusetts Red Cross fund to \$94,416.22; the Boston branch of the American Ambulance Hospital fund to \$48,793.95; the Boston Jewish relief fund to \$23,647.85; the Russian relief fund to \$9570.00; and the Polish relief fund to \$9052.91.

BOSTON AND NEW ENGLAND.

SMALLPOX IN EVERETT.—Report from Everett, Mass., states that two cases of smallpox were discovered in that town on Dec. 27. The couple have been isolated in their home, and about 350 contacts were vaccinated.

FIRE IN NEW HAVEN HOSPITAL.—Report from New Haven, Conn., states that on Dec. 27 a fire broke out in the Grace Hospital of that city. The seven patients in the portion of the building involved were rescued by nurses. The damage is estimated at \$10,000.

NEW ENGLAND BAPTIST HOSPITAL TRAINING SCHOOL.—The trustees of the New England Baptist Hospital have issued invitations to the graduation exercises of their training school for nurses to be held on Thursday evening, Jan. 7, 1915, at 8 o'clock, in Kingsley Hall, Ford Building, corner of Bowdoin Street and Ashburton Place, Boston. The principal address will be made by Dr. Joel E. Goldthwait, of Boston, and diplomas will be presented to a class of nine nurses by Colonel Edward H. Haskell, president of the board of trustees. Dr. George S. C. Badger, chairman of the training school committee, will preside.

HOSPITAL BEQUESTS.—At the recent 35th annual meeting of the Lynn (Mass.) Hospital, announcement was made of a gift of \$100,000 for a nurses' home from Mrs. Luther S. Johnson, of that city.

The will of the late Sara E. Woodworth, of Boston, filed in the Suffolk probate court on Dec. 26, contains a bequest of \$6000 to the Free Hospital for Women, Brookline, Mass.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending Dec. 29, 1914: Diphtheria 66, of which 1 was non-resident; scarlatina 40, of which 6 were non-resident; typhoid fever 4; measles 50; tuberculosis 43, of which 4 were non-resident. The death-rate of the reported deaths for the week was 16.95.

Current Literature

MEDICAL RECORD.

DECEMBER 19, 1914.

1. FAUNTLEROY, P. C. *Gun-shot and Shell Wounds.*
2. MABBOTT, J. M. *Infant Feeding with Top Milk.*
3. RANKIN, E. G. *The Readings of the Sphygmomanometer from a Clinical Standpoint.*
4. BRODSKY, E. S. *Delirium Grac with Report of Three Cases and Differential Diagnosis.*
5. DANA, C. L., AND ELSBERG, C. A. *Cyst of the Cerebello-Pontine Angle; Operation with Relief of Symptoms.*
6. *LUMBARD, J. E. *A New Method for the Control of Post-Anesthetic Nausea.*
7. PABST, C. F. *Why Fumigation Fails.*

6. Lumbard holds that the chief factor in the causation of nausea and vomiting after ether or other anesthetics is the smell of the anesthetic. He has devised a cigarette-shaped piece of gauze which can be fastened to the face by adhesive plaster in such a way that it just projects beyond the tip of the nose. By keeping this gauze saturated during an operation with some pleasant perfume, e.g. oil of bitter orange peel, he has been uniformly successful in preventing post-anesthetic nausea. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

DECEMBER 19, 1914.

1. EVARTS, A. B. *Report of a Case of Aphasia and Apraxia.*
2. LERCH, O. *Glenard's Disease.*
3. ROBINSON, W. J. *Gonorrheal Epididymitis and Its Non-operative Treatment.*
4. FOX, H. *Cirrhosis of the Liver in Wild Animals.*
5. FRANK, J. *Penetrating Gunshot Wounds of the Abdomen.*
6. FAUZ, J. I. *Phenolsulphonephthalein Renal Function Test.*
7. ABRIAMS, R. *Autoserum Injections in Streptococcic Endocarditis.*
8. BATES, F. D. W. *Eye-strain in the Development of Tuberculosis.*
9. SKILERN, P. G., JR. *Sulphurous Acid in the Treatment of Furuncles.*
10. SONNENSCHIEIN, H. D. *The Treatment of Chronic Leg Ulcers.*

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

SEPTEMBER, 1914.

1. *SCHMIDT, A. *Severe Anemia Connected with Gastro-intestinal Diseases.*
2. ANDERS, J. M., AND JAMESON, L. H. *The Relation of Glycosuria to Pituitary Disease and the Report of a Case with Statistics.*
3. *FITZ, R. *The Value of Tests for Renal Function in Early and Advanced Bright's Disease.*
4. *SCHLEITER, H. G. *Observations on the Intravenous Use of Strophanthin with Regular and Irregular Pulse Rhythms.*
5. *GOODMAN, E. H., AND LUDERS, C. W. *The Value of Colonic Inflation in the Diagnosis of Chronic Appendicitis.*
6. MORGAN, W. G. *Duodenal Alimentations.*
7. *STOLL, H. F., AND HEUBLEIN, A. C. *Tuberculosis of the Bronchial Glands and Lung Hilus: A Clinical and Radiographic Study.*
8. WILLIAMS, E. M. *Hereditary Ataxia*
9. *HOPKINS, J. G., AND ZIMMERMANN, J. B. *Cholesterin Antigens in the Wassermann Reaction and the Quantitative Testing of Syphilitic Sera.*
10. CAMPBELL, R. P., AND OWER, J. J. *An Unattached Mass Found in the Abdominal Cavity of a Male.*
11. EMSHEIMER, H. W. *The Value of Petechiae in Diagnosis and Prognosis.*
12. BRIGGS, LER. H. *The Neutrophilic Blood Picture in Pernicious Anemia: A Preliminary Report.*

1. Schmidt contributes a careful discussion of the evidence as to the etiology of pernicious anemia, with special reference to that suggesting that a hemolytic agent derived from the gastro-intestinal tract is responsible, at least in some of the cases. It is shown that the gastric achylia in certain instances has been proved to exist before the appearance of the anemia, and that the diarrhea present in a third of a series of cases preceded the development of the anemia by many years. While no constant anatomical changes are demonstrated, the author supports the view that degenerative changes in the mucous membrane of the small intestine produce hemolytic lipoids, which have been extracted by Berger and Tsuchiya in his laboratory. In treatment he advises a diet avoiding irritants, finely divided and easily assimilable, limiting carbohydrates or proteins according as the stools are acid and fermenting or alkaline and putrefactive. Stress is laid upon the regular use of hydrochloric acid with meals and upon gastric and duodenal lavage.

3. Fitz's paper deals first with Schlayer's tests of renal function, by which, as in illustrative cases, it is shown that delayed excretion of lactose, injected intravenously or intramuscularly, is indicative of vascular nephritis, whereas delayed outputs of sodium chloride and of potassium iodide point to tubular nephritis. These tests have been shown to reveal abnormal conditions in advance of clinical symptoms which have later developed. Of wider application in determining the severity of the disorder in cases with symptoms, however, is the phenolsulphonethalein test, by means of which with few exceptions information may be obtained as to the total renal function. To minimize the occurrence of error in these exceptions more than one test must be used. The determination of the incoagulable nitrogen and urea in the blood is of importance. Determinations of signs of acidosis in blood, urine and expired air may prove of significance. By the results of these tests the dietetic treatment may be made more rational, giving a salt-poor diet in cases with poor chloride elimination, limiting protein in cases unable to excrete nitrogen, and giving alkalis in cases with acidosis.

4. Schleiter reports upon a series of cases given intravenous doses of strophanthin, some being cases with regular hearts, while others were cases of auricular fibrillation or other irregularities. While the tracings given are not all conclusive of the diag-

noses, and little attention was paid to the effect on blood-pressure, the observations are of distinct interest. It is concluded that the action of strophanthin administered intravenously is similar to that of other members of the digitalis group administered orally, but more rapid. It showed a decisive effect in all cases of auricular fibrillation, and is recommended in severe cases of this condition to tide the patient over until digitalis by mouth takes effect. In the series with regular hearts its action was not striking. The maximum dose is 1 mgm. In two cases of paroxysmal tachycardia its use was followed by cessation of the attack.

5. Goodman and Lüders have applied Bastedo's test of colonic inflation to induce tenderness at McBurney's point, proposed as a sign of chronic appendicitis. While they failed to obtain a positive test in any of 75 control cases, in three with abdominal symptoms who reacted positively, no appendicular lesion was found. Twelve of the negative cases had diseased appendices, five having acute appendicitis. They conclude that the test is not without value, but that it should be regarded as merely an aid to diagnosis to be given only minor consideration.

7. Stoll and Heublein discuss the occurrence and diagnosis of tuberculous bronchial glands, particularly in children. They conclude that up to the fifteenth year this is the commonest form of tuberculosis. The early symptoms are chiefly toxic, although cough is generally present. Signs of apical disease are not to be expected. The most significant sign in their opinion is whispered bronchophony over thoracic vertebrae as described by d'Espine.

9. Hopkins and Zimmermann have done a large number of Wassermann reactions comparing the lipid and the cholesterin antigens. The results seem to show that the cholesterin antigens, while increasing the sensitiveness of the test, involve a risk of error which should not allow them to be used to the exclusion of the less sensitive extracts of the original test.

[F. W. P.]

OCTOBER, 1914.

1. *MILLER, J. L. *The Clinical Value of Expecto-rants.*
2. *HALL, J. N. *Relative Pulmonic Insufficiency.*
3. *TAUSSIG, F. J. *The Prevention and Treatment of Vulvovaginitis in Children.*
4. *EINHORN, H. *Direct Examination of the Duodenal Contents (Also Bile) as an Aid in the Diagnosis of Gall-bladder and Pancreatic Affections.*
5. COLLINS, J., AND BAEHR, E. *Disseminated Sclerosis*
6. FETTEROLF, G., AND ARNETT, J. H. *A Case of Sprengel's Deformity.*
7. NILES, G. M. *Some Remarks on the Treatment of Amebic Dysentery.*
8. LANDIS, H. R. M., AND KAUFMANN, I. *The Diagnosis of Tuberculosis in Early Life.*
9. *FRIEDMAN, G. A. *The Difference in the Morphology of Blood in Gastric Ulcer, Duodenal Ulcer and in Chronic Appendicitis, Based Upon Fifty Operatively Demonstrated Cases.*
10. ORBISON, T. J. *Myopathy: With Clinical Records of Eight Cases Comprising Various Types.*
11. *HOWELL, A. A. *The Use of Pituitary Extract in the Control of Some of the Associated Symptoms of Pneumonia Which Favor Hypotension.*
12. WILLIAMS, T. A. *The Traumatic Neuroses.*
13. WOHL, M. G. *Granuloma Fungoides.*

1. Miller has conducted experiments with the object of testing the influence of expectorant drugs upon the bronchial secretion in dogs. While his results are not convincing as to the action of the drugs in man, he concludes that ammonium carbonate, ammonium chloride, apomorphine and ipecac when given in sufficiently large doses to animals increase bronchial se-

cretion, but that in doses equivalent to ordinary human therapeutic doses no increase occurred.

2. Hall calls attention to the occurrence of relative pulmonic insufficiency, especially in advanced cases of mitral stenosis, a condition which has been seldom mentioned in the literature. He believes it to be found in perhaps 3 to 5% of the cases of mitral stenosis. It is to be detected by the presence of a soft diastolic murmur in the pulmonic area, disappearing as compensation is regained but reappearing as decompensation reappears; with exertion or with expiration, particularly with the glottis closed, it is intensified. The pulmonic second sound is commonly enfeebled.

3. Taussig has investigated 66 cases of vulvovaginitis in children. In the etiology he finds reason to suspect that infection from the lavatory seat is an important factor. In treatment he had the best success with, in acute cases, rest in bed for two weeks with injections of 25% argyrol twice a day; in the second and third weeks the argyrol was replaced by 1% silver nitrate, later changed to 2%, or even 4%, at increasing intervals, until there is no discharge for a month. He urges the adoption of public health measures to diminish the spread of the disease from one child to others.

4. Einhorn reports deductions from his experience with duodenal contents withdrawn by tube for examination. The macroscopic appearance of bile is of significance, golden yellow clear bile usually indicating a normal gall-bladder, whereas fresh bile that is greenish yellow and somewhat turbid suggests disease of the gall-bladder and gall-stones. Study of ferments permits gauging pancreatic function. Constant absence of one ferment usually indicates chronic pancreatitis. Absence both of bile and of pancreatic juice suggests obstruction at the papilla, whereas absence of bile only shows a higher obstruction.

9. Friedman attempts to show differences of diagnostic value in the blood pictures of gastric ulcer, duodenal ulcer and appendicitis. His results, however, are not sufficiently constant to deserve more than partial reliance in clinical diagnoses.

11. Howell advocates the use of pituitary extract in pneumonia, not only for its direct effect in raising and supporting blood pressure, but also on account of its action in combating tympanites. He feels that the existence of diarrhea should not be taken as a contraindication. [F. W. P.]

NOVEMBER, 1914.

1. *CLARK, J. G. *Ultimate Results Secured from Surgical Intervention in Simple Cases of Cholelithiasis Discovered During Operations for Other Conditions.*
2. FRIEDENWALD, J. *A Clinical Study of One Thousand Cases of Cancer of the Stomach.*
3. *LICHTY, J. A. *Some Clinical Aspects of Gastric Hemorrhage.*
4. GRULEE, C. G. *Laboratory Diagnosis in the Early Stages of Congenital Syphilis.*
5. *SACHS, B., STRAUSS, I., AND KALISKI, D. J. *Modern Methods of Treatment of Syphilis of the Nervous System.*
6. CALLENDER, G. R. *Cardiac Syphilis: Report of a Case.*
7. *VEEDER, B. S. *Duodenal Ulcers in Infancy.*
8. BROOKS, H. *Effects of Heredity in Bovine Tuberculosis.*
9. *CHURCHMAN, J. W. *Notes on the Examination of the Urine for Tubercle Bacilli.*
10. *COCKE, C. H. *Albumin in the Sputum in Tuberculosis: Its Value in Diagnosis and Prognosis.*

1. Clark's article is in the main a protest against the older teaching that in a large proportion of cases gall-stones cause no symptoms. He urges their removal whenever their presence is known.

3. Lichty calls attention to the occurrence of severe hemorrhages in gastric and duodenal ulcer when food by mouth has been withheld. He concludes that in acute ulcer or in acute exacerbations of chronic ulcer, feeding by mouth should not be suddenly discontinued.

5. Sachs, Strauss and Kaliski report upon 120 cases of syphilis of the nervous system treated by them, in part by salvarsan intravenously supplemented by mercury, and in part by intraspinal use of salvarsanized serum. The latter treatment, however, does not seem to them to possess advantages over the intravenous method. With regard to results the authors feel that in tabes dorsalis in most cases the subjective condition of the patient can be greatly improved and the progress of the disease checked. In cerebral and cerebrospinal lues the results of salvarsan treatment combined with mercury were better than were secured by any previous methods. The results in general paresis were less satisfactory.

7. Veeder reports five cases of duodenal ulcer in infants, four with autopsy, and summarizes the literature.

9. Churchman reports two observations of interest: the finding of tubercle bacilli by examination of washings of the bladder in a case of tuberculous ulcer, and the finding of tubercle bacilli in the urine of a case proved by autopsy to be general miliary tuberculosis.

10. Clark, from a small series of cases and from the literature, concludes that the test for albumin in the sputum in tuberculosis deserves a wider application, with reference both to diagnosis and to prognosis. In diagnosis its worth is still unproved and its presence may be misleading; it seems, however, to be positive in all cases of tuberculosis where the sputum is positive, and in general to vary in amount of albumin, according to the degree of the exudative or destructive process. [F. W. P.]

DECEMBER, 1914.

1. *THAYER, W. S., AND SNOWDEN, R. R. *A Comparison of the Results of the Phenolsulphonphthalein Test of Renal Function with the Anatomical Changes Observed in the Kidneys at Necropsy.*
2. *WILSON, L. B., AND McDOWELL, I. E. *A Further Report of the Pathologic Evidence of the Relationship of Gastric Ulcer and Gastric Carcinoma.*
3. *MOFFITT, H. C. *Studies in Pernicious Anemia.*
4. *LYNCH, J. M., AND DRAPER, J. W. *Anastalsis and the Surgical Therapy of the Colon.*
5. *McCRAE, J. *The Subcutaneous Injection of Orygen as a Therapeutic Measure.*
6. CROHN, B. B. *New Growths Involving the Terminal Bile and Pancreatic Ducts: Their Early Recognition by Means of Duodenal Contents Analyses.*
7. *PALMER, W. W. *The Absorption of Protein and Fat after the Resection of One-Half of the Small Intestine.*
8. HOLDING, A. F. *The Roentgenologic Method of Differentiating Between Ulcer and Cancer of the Stomach and Duodenum.*
9. WARFIELD, L. M. *Further Observations on Diastolic and Pulse Pressure.*
10. LYON, B. B. V., AND EIMAN, J. *A Centrifuge Method to Produce a Uniform Standard for Wassermann Readings.*

1. Thayer and Snowden report a study of 54 cases in which the phenolsulphonphthalein test of renal function performed a variable period before death has been compared with the condition of the kidneys at autopsy. In cases of severe chronic nephritis a low phthalein output was found in all. In cases of chronic passive congestion from heart disease the phthalein elimination was often considerably reduced, but as a rule rose with the establishment of circulatory compensation. In the few instances of chronic nephritis

of moderate extent the phthalein excretion was considerably reduced. In one case of acute nephritis and in one case of amyloid disease the excretion was greatly reduced, and in some instances of cloudy swelling in acute infections considerable reductions were observed. The article lends strong confirmation to the value, both diagnostic and prognostic, of the test.

2. Wilson and McDowell report that of 399 cases of gastric cancer in which resections were performed, 52% showed definite evidence of association with ulcer; while in the remainder the evidence of association with ulcer was not conclusive, from a study of clinical histories combined with examination of surgical and autopsy specimens, it is concluded that gastric cancer rarely develops except at the site of a previous ulcerative lesion.

3. Moffitt reviews the literature of splenectomy in pernicious anemia, collecting 31 reported cases, to which he adds two original ones. While he agrees with Klempirer and von Decaslello that we have in the operation a means of bringing about a remission of the disease fairly certain when other means have failed, the facts that 8 of the 33 cases died immediately or soon after this operation and that certain cases have not been benefited, together with the fact that improvement may occur without treatment, even in the worst cases of pernicious anemia, are to be considered before splenectomy is advised.

4. Lynch and Draper discuss the subject of surgical alterations of the course and function of the colon, and describe operations which they propose to avoid the harmful effects of ileosigmoidostomy and other similar procedures as they have hitherto been performed.

5. McCrae reports his experience with the subcutaneous injection of oxygen. While the results in eleven cases of pneumonia were disappointing, in cardiac and renal dyspnea notable relief was usually obtained. It seemed of benefit also in accidents of anesthesia, edema of the lungs and glottis, obstruction of the upper respiratory tract, asphyxia at birth, syncope and electrocution.

7. Palmer from study of a case of extensive resection of the small intestine records the following observations: The loss of nitrogen in the stools was four and five times the normal, and the loss of fat five to six times the normal. There was a high urinary indican. Ammonia formed a much larger part of the urinary nitrogen than normal. [F. W. P.]

in South Carolina. They found that the disease spread from a pre-existing case as a center in these six villages. It was transmitted to new victims only through very short distances and chiefly to those immediately associated in the home with a pre-existing case. Frequent use of corn-meal as an article of diet was found not to be an etiological factor in these cases. No evidence was discovered that canned goods have anything to do with the causation of pellagra. Frequent, even daily, use of fresh meat and of eggs afforded no relative protection from the disease. The daily use of milk seemed to diminish somewhat the danger of contracting pellagra.

4. Staines, James and Rosenberg studied the effect of changes in altitude on the lymphocytes of the blood in students and monkeys. They find that at an elevation of 6000 feet the larger lymphocytes are absolutely increased by at least 20%. The basophilic mononuclear elements in the blood at sea-level are about 34%, and at 6000 feet about 42%. The total leucocyte count is approximately the same at both levels. The total polymorphonuclear cells diminish in number in exact proportion to the increase in the number of mononuclears. There is an increase of 22% in the number of erythrocytes at an altitude of 6000 feet.

8. Batherwick reports on an elaborate study of the influence of foods on the composition of the urine. The true acidity of the urine is due to an excess of H+ ions in the excretion. A surplus of OH ions produces alkalinity, and when there is an equal number of H+ and OH ions present the solution becomes neutral. An increase in H+ is accompanied by a significant increase in the ammonia excretion. The solubility of uric acid in urine is closely dependent on the H+. All urines with an acid reaction are supersaturated with uric acid, while alkaline urines are capable of dissolving added uric acid. Foods with a predominance of acid-forming elements increase the urinary acidity. Rice and whole-wheat bread increase urinary acidity. Plums, prunes and cranberries, although yielding a basic ash, nevertheless increase the acid formation because of their benzoic acid content, hippuric acid being formed. Foods which have a preponderance of basic elements lead to the formation of a less acid urine. Potatoes, oranges, raisins, apples, bananas and cantaloups are very efficient in reducing the acid output. Tomatoes are of less value in this respect. [L. D. C.]

THE ARCHIVES OF INTERNAL MEDICINE.

SEPTEMBER, 1914.

1. SILER, J. F., GARRISON, P. E., AND MACNEAL, W. J. *Introduction to the Second Progress Report of the Thompson-McFadden Pellagra Commission.*
2. *SILER, J. F., GARRISON, P. E., AND MACNEAL, W. J. *A Statistical Study of the Relation of Pellagra to Use of Certain Foods and to Location of Domiciles in Six Selected Industrial Communities.*
3. GREENWALD, I. *Nitrogen and Sulphur Metabolism in a Cretin.*
4. *STAINES, M. E., JAMES, T. L., AND ROSENBERG, C. *Lymphocyte Increase and Altitude.*
5. MAJOR, R. H., AND NOBEL, E. *The Glycyltryptophan Reaction in Meningitis.*
6. BISHOP, F. W. *Elliptical Human Erythrocytes.*
7. MEMSON, J. F., AND SHAW, A. L. *The Pituitary Gland in Epileptics.*
8. *BATHERWICK, N. R. *The Specific Role of Foods in Relation to the Composition of the Urine.*

2. Siler, Garrison and MacNeal present the first of a series of papers dealing with several phases of the work of the Thompson-McFadden Pellagra Commission in 1913. This paper deals with the relation of pellagra to certain foods and to location of dwelling, as studied by the writers in six cotton-mill villages

OCTOBER, 1914.

1. *SILER, J. F., GARRISON, P. E., AND MACNEAL, W. J. *The Relation of Methods of Disposal of Sewage to the Spread of Pellagra.*
2. BRIDGMAN, E. W. *Notes on a Normal Presystolic Sound.*
3. LAMB, A. R. *Periarthritis Nodosa—A Clinical and Pathological Review of the Disease. With a Report of Two Cases.*
4. WESSLER, H. *Latent Hypertrophy of the Heart in the Nephritis of Children.*
5. *FRIEDMAN, J. C., AND STROUSE, S. *The Non-Specificity of Carbohydrate Tolerance Tests.*
6. *ROSENBLUM, J., AND ANDREWS, V. L. *The Potassium Content of Cerebrospinal Fluid in Various Diseases.*
7. FROTHINGHAM, C., JR., AND SMILLIE, W. G. *The Relation Between the Phenolsulphonaphthalein Excretion in the Urine and the Non-Protein Nitrogen Content of the Blood in Human Cases.*
8. ROSS, E. L., AND SINGER, H. D. *A Point to be Considered in the Use of the Abderhalden Reaction.*
9. *WALKER, I. C. *The Specificity of Cholesterolin with Syphilitic Sera and of Cholesterolin-Reinforced Heart Antigen in the Wassermann Reaction.*
10. *WILBUR, R. L., AND OPHÜLS, W. *Botulism: A Report of Food-Poisoning Apparently Due to*

Eating of Canned String Beans, with Pathologic Report of a Fatal Case.

1. BLUMER, G. *A Note on the Normal Peculiarities of the Heart-Sounds in the Region of the Sternum.*

1. Siler, Garrison and MacNeal studied the relation of methods of disposal of sewage to the spread of pellagra in South Carolina. They found that pellagra morbidity was higher in congested communities using surface privies than in more sparsely settled districts in which similar methods for the disposal of excreta were employed. In the city of Spartanburg the endemic foci of pellagra were located in the districts in which surface privies were in use. In cotton-mill villages equipped with surface privies pellagra was found to be endemic and new cases arose there year after year. In two villages completely equipped with water-carriage systems of sewage disposal it was impossible to find cases which had certainly originated there. Some evidence was found that pellagra spreads in hospitals for the insane more readily in the wards housing untidy patients. The writers conclude that methods of disposal of human wastes may be a determining factor in the spread of pellagra and such means of prophylaxis against this disease should be thoroughly tested.

5. Friedman and Strouse made a clinical study of carbohydrate tolerance tests in a large number of cases in which a functional disturbance of any of the ductless glands was thought to exist. They conclude that while these tests may indicate in a general way functional disability of an organ under suspicion, they can never be interpreted in an absolutely specific manner, for other organs may be involved. Functional inefficiency of one gland sufficient to lower the threshold of carbohydrate metabolism may be entirely compensated for by functional hyperactivity of a correlated gland.

6. Rosenbloom and Andrews estimated the potassium content of the cerebrospinal fluid in normal persons and in cases of paresis, cerebrospinal syphilis, dementia precox, alcoholism, meningitis, encephalitis, typhoid fever and neurasthenia. They find that the potassium content is not increased in degenerative diseases of the cerebrospinal system but is high in the acute cases. The test, however, is of no material value in diagnosis. According to the writers' observations, the potassium content of uncentrifuged cerebrospinal fluid was higher than that of centrifuged fluid. No relation was found, however, between the number of cells in the fluid and its potassium content, or between the potassium content and the globulin reaction.

9. Walker presents clinical evidence to show that cholesterolized alcoholic extracts of human heart have a specific fixation property with syphilitic sera and that they do not give non-specific fixation with non-syphilitic sera, provided the re-agents are accurately titrated. The serum of a syphilitic patient contains something for which cholesterol has a definite fixation power in the presence of complement.

10. Wilbur and Ophüls report twelve cases of botulism, one fatal, due to the eating of domestically prepared canned string beans served without preliminary heating. The methods of sterilization under pressure in use by canning factories seem to prevent the growth of *B. botulinus* in their pack. In the fatal case reported the gross autopsy findings were negative except for moderate hyperemia of the cerebral vessels, especially at the base of the brain and in the region of the fourth ventricle. There was marked hyperemia of the viscera, especially the liver, kidneys and intestines, and bronchopneumonic lesions of the lungs. Microscopic examination of the brain showed many vascular thromboses, especially about the brain stem and involving the nuclei of most of the cranial nerves. Such lesions explain the clinical phenomena better than the hypothesis of a specific action of botulin on certain ganglion cells. [L. D. C.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 36. SEPTEMBER 3, 1914.

1. STRAUSS, H. *The Dietetic Treatment of Hyperacidity, Hypersecretion and Peptic Ulcer.*
2. KULENKAMPFF, D. *Recent Progress in Inhalation Anesthesia.*
3. *TSCHERTKOFF, J. *Indicanemia and Uremia.*
4. *HAFEMANN, G. *The Albumin Content of Tuberculous Sputum.*
5. RAUDNITZ. *A Substitute for Milk of Almonds.*

3. Tschertkoff has tested the blood serum for the presence of indican as a sign of impending uremia. The method used consisted in precipitating the albumin with trichloroacetic acid, filtering, and testing the filtrate for indican by Obermayer's re-agent. At the same time the blood urea was estimated. Tschertkoff finds that in nephritis without renal insufficiency there is never a significant urea retention nor is indican present in the serum. When, however, the blood urea reaches a certain concentration, indicanemia is found. Thus indican in blood serum affords the same unfavorable prognostic information as increased blood urea.

4. Hafemann has analyzed the albumin content of 171 sputa, and has compared these findings with sputum examination for tubercle bacilli. From his results, he concludes that more than one albumin test must be made to allow for any deductions, and that if bacilli are found, albumin is always present. He feels that the most probable reason for this is that the albumin content of sputa depends on metabolic products of the tubercle bacillus. [R. F.]

No. 37. SEPTEMBER 10, 1914.

1. *BRENTANO, A. *The Treatment of Gun-shot Wounds of Bones and Joints.*
2. EDITORIAL. *Surgical Experience in the Russo-Japanese War.*
3. CRONER, F. *The Sterilization of Drinking Water in the Field.*
4. HOENE. *An Unusual Case of Bechterew's Disease (Spondylitis Achylopoetica Chronica).*
5. *KROMAYER. *Defects in the Salvarsan Treatment of Syphilis.*
6. ORLOWSKI. *Do Sterile Gonorrheal Shreds Cause Leucorrhoea?*

1. In the field, Brentano has found that infected wounds are of two types. The first is caused by the introduction of an infecting agent at the time the wound is made. The second is caused by organisms which are introduced into the wound during treatment. To avoid the latter infections all wounds at first must be treated as though sterile. Dry aseptic dressings should be applied and such bandages as to make the affected parts as comfortable as possible. If subsequent infection develops, drainage is indicated, and amputation as a final resort. On the whole, the infections which Brentano has seen have been relatively mild. Tetanus and erysipelas were rare, gas bacillus and pyocyanus infections were somewhat commoner, but ordinary pus infections were seen most frequently.

5. Kromayer recalls that until four years ago, mercury was used commonly during the past three centuries in the treatment of syphilis. It has acted quickly and effectively in 90% of the cases treated and has been used over long periods of time without ill effect. Four years ago salvarsan was introduced. Results from its use show that the clinical manifestations of the disease disappear with miraculous speed, and that the general condition of the patient improves under treatment.

Salvarsan has certain disadvantages. It must be given intravenously, which may disturb patients; it is

expensive; and cases of relapse or sudden death may occur during treatment.

Kromayer feels that relapses and accidents occur less often when repeated small doses are given instead of one or two very large doses. A combined mercury and salvarsan cure is the most effective form of treatment. [R. F.]

Obituary.

EDWARD RUSSELL COGSWELL, M.D.

EDWARD RUSSELL COGSWELL, M.D., died at his home in Cambridge, December 22, 1914, aged 73 years. Dr. Cogswell was born at South Berwick, Me., June 1, 1841. He entered Harvard College with the class of 1864, left college in 1862 to serve with the 44th Regiment of Volunteers, Mass. V. M., and was mustered out of the service in June, 1863. He received the degree of M.D. from Harvard in 1867, A.B. as of 1864 in 1871, and A.M. in 1872. He became a Fellow of The Massachusetts Medical Society in 1867 and was transferred to the retired list in 1906.

For eleven years Dr. Cogswell served on the Cambridge School Committee and at the time of his death was president of the Cambridge Savings Bank, a director of the Charles River Trust Company, and a trustee of the Cambridge Hospital.

He is survived by a daughter and by three sons, one of them being also a physician.

Miscellany.

BELGIAN PHYSICIANS' RELIEF FUND.

IN response to an appeal made by Dr. Charles Jacobs of Brussels for aid for civilian physicians, pharmacists and patients in devastated Belgium, a Committee of American Physicians for the aid of the Belgian profession, has been organized. It is composed of the following members:

- Victor C. Vaughan, President American Medical Association.
- William L. Rodman, President-elect American Medical Association.
- John B. Murphy, President Clinical Congress of Surgeons of North America.
- Charles H. Mayo, President-elect Clinical Congress of Surgeons of North America.
- J. M. T. Finney, President American College of Surgeons.
- J. Riddle Goffe, President The Seventh International Congress for Obstetrics and Gynecology.
- George H. Simmons, Editor *Journal of the American Medical Association*.
- Thomas L. Stedman, Editor of the *Medical Record*.

Robert M. Green, Editor of the *Boston Medical and Surgical Journal*.

Claude L. Wheeler, Editor of the *New York Medical Journal*.

Franklin H. Martin, Editor of *Surgery, Gynecology and Obstetrics*.

Howard Canning Taylor, New York, N. Y.

Frank F. Simpson, Pittsburgh, Pa.

The officers of this committee are: Dr. Martin, chairman; Dr. Rodman, vice-chairman; Dr. Simpson, treasurer; and Dr. Taylor, secretary.

The names of other physicians will be added to this later. The executive committee consists of:

Dr. Franklin H. Martin, Chairman, 30 North Michigan Boulevard, Chicago, Ill.

Dr. J. Riddle Goffe, 171 W. 71st Street, New York City.

Dr. Howard Canning Taylor, Secretary, 32 W. 50th Street, New York City.

Dr. Frank F. Simpson, Treasurer, 7048 Jenkins Arcade Building, Pittsburgh, Pa.

Cable inquiries are being made to learn direct from Belgium and Holland the most urgent needs of the profession at this time.

The commission for relief in Belgium will deliver supplies as far as war conditions will permit, and without cost to our committee for transportation and delivery in Belgium. Through the medium of the commission for relief in Belgium efforts are being made to standardize boxes of medical supplies for civilians and to perfect diplomatic arrangements permitting their shipment into Belgium. In order to facilitate delivery it has been arranged that all shipments by the Committee of American Physicians will be made in boxes painted *yellow*. This is in conformity with the color scheme adopted by the commission for relief in Belgium which is designed to facilitate the safe passage of articles across the seas, through the various countries they must traverse and to their ultimate destination.

All subscriptions to the fund for the aid of Belgian physicians should be sent in the form of checks or postal orders and should be made payable to Dr. Frank F. Simpson, treasurer. They should be sent to Dr. Frank F. Simpson, 7048 Jenkins Arcade Building, Pittsburg, Pa.

As many signatures are illegible, all checks should be accompanied by a card giving the donor's name and address in typewriting or printing.

The Union Trust Company of Pittsburg has been selected as the depository of the committee. Checks will be promptly deposited and will at once be available for the purchase of supplies by the Executive Committee.

A weekly report of receipts and expenditures will be made by the Treasurer to the members of the committee and through the medium of the medical journals, to the medical profession as well.

The following is the report of the Treasurer of the Committee of American Physicians for

the relief of the Belgian profession, for the week ending December 26, 1914.

Contributions:

Union Trust Company	Banking Facilities
Sterrett & Acheson, Attorneys	Professional Services
F. O.	\$ 25.00
F. H. M.	100.00
F. F. S.	100.00
S. P.	25.00
G. C. S.	5.00
S. A.	20.00
E. W.	25.00
B. L.	10.00
T. E. S.	20.00
T. L. S.	25.00
R. S. E.	10.00
M. W. R.	10.00
W. A. P.	25.00
M. C. S.	5.00
Total	\$405.00
Disbursements	None
F. F. SIMPSON, M.D., Treasurer.	

MILITARY NOSTALGIA.

THE issue of the *Lancet* for Nov. 28 presents an interesting editorial account of military nostalgia. The Italians speak familiarly of nostalgia as a disease of recruits, but apparently has not hitherto been recognized as such by the British.

"Nostalgia as a specific disease especially affecting recruits has never figured in English textbooks of medicine or mental disease, but our French allies had up to about the year 1877 issued a whole literature on the subject. Switzerland, as we are informed by Jean Jacques Rousseau, was the original home of what was long regarded as a dangerous malady. The Swiss, asserts, were forbidden to listen to the music of the Ranz-des-Vaches if it happened to be played to them when on the march, since the monotonous strains, associated in their minds with home and the mountains, led to desertions, sickness, and death. Johannes Hofer, a Mulhouse physician, is perhaps the original authority on *mal du pays*, which he calls 'pothopatrialgia.' His book was published in Basle in 1888. He speaks of a specific disease, tells many stories of its extraordinarily fatal results, and ascribes in quaint notation the music of the Ranz-des-Vaches, or Kuh-Reihen, to the sound which he directly traces his 'pothopatrialgia.' As years pass the picturesque element in the sickness becomes modified, and in 1837 we find the subject treated at great length and with complete appearance of scientific justice by Paulinier in a Montpellier thesis. He describes the pallor, taciturnity, absolute dejection, loss of appetite, and so forth, which attack the recruit suffering from home sickness, and adds the curious observation that in the great wars of the

French Republic the illness was unknown owing to the enthusiasm of the soldiers for France, every inch of which had become home in their regard. Later, when the Napoleonic wars had sapped the vitality of the nation, the condition of *mal du pays* became almost epidemic among the boy recruits of 1812 and the following years. There is little to choose between Paulinier's views and those of many of his successors. They all describe much the same set of symptoms. Writing as lately as February, 1863, an American army surgeon, De Witt C. Peters, speaks of the incidence of this form of melancholia among young recruits drawn from the Eastern States of the Union and sent to fight in the, to them, enervating climate of the South. 'The hospitals of New Orleans,' he says, 'during the past summer were filled with such cases. . . The majority of them were young men from the Eastern states, whose love of home and kindred is a characteristic trait.' His definition of the symptoms tallies with that of his predecessors. The symptoms produced by this aberration of mind are, first, great mental dejection, loss of appetite, indifference to external influences, irregular action of the bowels, and slight hectic fever. As the disease progresses it is attended by hysterical weeping, a dull pain in the head, throbbing of the temporal arteries, anxious expression of the face, watchfulness, and increased fever and wasting. Among young prisoners of war it is the worst complication to be encountered, as the writer can truthfully affirm."

Doubtless, as in all functional psychoses, military nostalgia depends largely on the emotional temperament of the race and of the individual.

EXAMINATION FOR ADMISSION TO AMERICAN COLLEGE OF SURGEONS.

At the annual meeting of the American College of Surgeons in Washington, D. C., on November 16, the following report was presented by the committee on examination for admission.

"Your committee begs to submit the following tentative scheme for admission to the American College of Surgeons: On and after November 1, 1914, the candidate for admission to the American College of Surgeons, in addition to fulfilling the conditions previously indicated, i.e. that he shall have been graduated from a medical school for not less than five years, and shall present evidence of personal probity and specialization in surgical lines, shall be required to lay before the committee on examination:

"1. Evidence that applicant has served at least one year as a hospital interne and three years as assistant, or one year as first assistant to a surgeon of recognized ability and with an adequate hospital service. From those who were graduated before 1915 an equivalent surgical experience shall be acceptable, especial im-

portance being attached to laboratory and research work.

"2. Evidence that he has visited other surgical clinics and laboratories than those to which he has been officially appointed, giving the dates of such visits, the time spent, and a brief summary of the work witnessed or performed.

"3. An abstract of at least fifty consecutive major operations which he has himself performed, this abstract to contain the name and address of the doctor or consultant referring the case; the pre-operative diagnosis; the anesthetic given, by whom, the quantity and the time of administration; the date of operation, and a brief description of it, with a note of the time required for its performance, calculated from the first incision to the beginning of the application of the dressing; the post-operative course, and a mention of complications, if such occurred; not only those conditions usually classed as such, but consecutive bleeding which calls for measures directed toward its control, hematoma of sufficient extent to require evacuation or drainage or suppuration, as slight even as a stitch abscess, are to be regarded as complications. The condition on discharge from the hospital with subsequent course of the case up to the date of application for membership, or as near this as is practicable. The applicant shall supplement his individual report of operations by a further abstract report of at least fifty cases in which he has acted as assistant.

"4. All applicants for fellowship to the American College of Surgeons whose date of graduation is 1920 or later shall be graduates from medical schools which shall have demanded of its matriculates two years of collegiate training, or the equivalent, including biology, chemistry, and physics. If the candidate's school of graduation be not accredited by the American College of Surgeons, he shall be required to pass a technical examination.

"5. Surgeons widely recognized by the profession as leaders of progress and exponents of finished technic, by a unanimous vote of the board of regents may be admitted to fellowship on recommendation of the committee on examination."

THE MEDICAL ASSOCIATION OF THE ISTHMIAN CANAL ZONE.

It is the desire of the Medical Association of the Isthmian Canal Zone to be represented at the Panama-Pacific Exposition, to be held in San Francisco during the year 1915.

It was decided at the November meeting of the Society to hold an extraordinary session at the Exposition some time during the Medical Period, which begins June 13 and ends July 3. The most desirable time appears to be the week beginning June 14, 1915, as this date is near the meeting to be held by the American Society of Tropical Medicine and the meeting of the American Medical Association.

It seems appropriate that our Society should be represented, and it is therefore earnestly requested that

all former and present members will endeavor to assemble at San Francisco during that week, and be prepared to support those in charge of the session.

Former members who now live near San Francisco will be asked to take the lead in perfecting the plan and as soon as the temporary chairman can be appointed, the members are requested to get in early communication with him and express their intentions in regard to attendance, and also offer any suggestions in regard to making the extraordinary session a success.

Due notice will be given as soon as the temporary chairman can be named.

H. C. CLARK, *Secretary-Treasurer.*
Ancon, C. Z.

December 16, 1914.

UNITED STATES CIVIL-SERVICE EXAMINATION.

The United States Civil Service Commission announces an open competitive examination for physicians, for men only, on Feb. 3, 1915. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in the Indian Service at the Hayward School, Wisconsin, at \$1,100 a year, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer or promotion.

Applicants must be graduates of or senior students in recognized medical schools. The names of such senior students will not, however, be entered on the eligible register in the event they pass the examination until they have furnished proof of actual graduation.

Persons who meet the requirements and desire this examination should at once apply for Form 1312, stating the title of the examination for which the form is desired, to the United States Civil Service Commission, Washington, D. C. No application will be accepted unless properly executed, including the medical certificate, and filed with the commission at Washington in time to arrange for the examination at the place selected by the applicant. The county officers' certificate in the application form need not be executed. The exact title of the examination as given at the head of this announcement should be stated in the application form.

APPOINTMENTS.

On Nov. 23 DR. JOSEPH W. COURTNEY, of Boston was appointed, by the Massachusetts State Board of Insanity, examiner of insane prisoners, in place of DR. HENRY STEDMAN, who resigned.

On Dec. 23, DR. THOMAS J. BARRETT, of Worcester Mass., was elected chairman of the Massachusetts State Board of Registration in Dentistry, in place of DR. JOHN F. DOWSEY, who resigned after a service of twenty years.

SOCIETY NOTICE.

The regular mid-winter meeting of the Middlesex South District Medical Society will be held in the Boston Medical Library at noon on Jan. 13, 1915. Dr. John Lovett Morse, of Boston, "Remarks on Infant Feeding and the Disturbances of Digestion in Infancy."

LYMAN S. HAPGOOD, M.D., *Secretary.*

The Boston Medical and Surgical Journal

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Original Articles.

ON OVARIAN TRANSPLANTATION: WITH REPORT OF A CASE OF IMPLANTATION INTO THE UTERUS WITH RESULTING PREGNANCY.*

BY MALCOLM STORER, M.D., BOSTON.

THAT the question of the feasibility and utility of ovarian transplantation is one that has attracted considerable attention in recent years is sufficiently attested by the hundred or more articles on the subject I have looked over, all published since Morris of New York in 1895 reported the first case of successful transplantation in the human. In the same year, working independently, Knauer (*Centrbl. f. Gyn.*, 1896) performed a number of successful experiments upon animals. As the utility of the procedure is evidently still one of the moot points in gynecology, I have been led to prepare this survey of what has thus far been accomplished. The best papers on the subject are those of Martin (*Trans. Am. Gyn. Soc.*, 1911) and Sauvè (*Les greffes ovariennes: Thèse de Paris*, 1910) and it is largely upon their observations that this paper is based.

FEASIBILITY OF TRANSPLANTATION.

The publications of some fifty observers show that ovaries or parts of ovaries can be successfully transplanted in animals from one part of the body to another, especially if autografts are used. In animals these experimentally transplanted ovaries generally live and flourish indefinitely and in many cases the animals have

produced young with regularity (*c. g.* Grigorieff, *Centrbl. f. Gyn.*, 1897, four pregnancies in rabbits).

While in animals autografts are generally successful, the transplantation of ovaries from another animal (heterografts) are apt to be as uniformly unsuccessful. For instance, Knauer had 3 failures in 12 autografts and 12 failures in 13 heterografts. As to what failure or success consists of I think it is fair to regard the experiment as a success clinically if six months after the operation the ovary is still evidently functioning or if conception follows. Of course absolute proof that a graft has taken means that corpora lutea and interstitial cells can be demonstrated microscopically after an interval of say six months. Transplantation of the ovaries from one species to another (rabbit to cat) have been very generally unsuccessful. Occasionally it has been done. Fuges grafted a number of ovaries of monkeys into the spleens of rabbits with occasional successes. So too the grafting of ovaries into males (*c.g.* into the testis) is generally unsuccessful, although Katsch and Schultz have managed to do it.

Naturally the study of the end results of ovarian transplantation in humans is a very different thing from that in animals owing to the difficulty of controlling the experiment with subsequent visual investigation. Even such positive occurrences as a continuation of menstruation and subsequent pregnancies are to be regarded with suspicion unless the reputation of the reporter is such as to give moral certainty that no fragment of ovarian tissue was left behind. This applies of course especially to cases of chronic salpingo-oöphoritis where the many and dense adhesions render at least possible such an accident. Even masters of surgery may easily do this. Lucas Championnière (*Bull. Soc. Chir.*, 1909) relates a case where he removed both

* Read at the Obstetrical Society of Boston, October 27, 1914.

ovaries and menstruation kept up. Next year he opened the abdomen again and removed a piece of ovary that had been left behind. Generally however such pieces are too small and too buried in new adhesions to be found.

It may be said of ovarian grafting in humans that while the chance of the graft taking is distinctly smaller than is the case with animals, still a majority of the autografts do take, while success with heterografts is only exceptional. Even when the transplanted ovary gradually dies, as is often the case, it is a matter of common experience that its function is preserved for at least several months, the menopause being a gradual rather than an abrupt one. From the few histological studies that have been made of grafted ovaries it seems that there is at first almost always a more or less extensive degeneration of the graft, especially of its cortex, due to insufficient blood supply, with often a later regeneration (Preobachensky and Katasch). Of course if this regeneration be a real and permanent one the permanent functional activity of the organ may be expected. Pankow reports careful microscopical examination of a transplanted ovary after several years of menstrual life that showed all the characteristics of a normal ovary.

Technique. Views vary greatly as to the technique of transplantation and as to whether to take the whole ovary or only a part of it. Most men think that it is quite sufficient to stitch a piece of ovary (size generally not stated) to any raw surface and that the vascular anastomosis procedures of Carrel and Guthrie are more or less of a surgical *tour de force* implying a degree of dexterity that is given to few men and that is in fact quite unnecessary. Mauclaire (*Bull. et Men. Soc. Chir. Paris*, 1910) thinking that frequently lack of success is due to poor blood supply and not attaching especial importance to any re-establishment of nervous current claimed necessary by some writers, transplants the ovary into the subcutaneous connecting tissue and establishes a copious blood supply by anastomosing the epigastric artery with one of the ovarian vessels. He has done by various methods 109 autografts, 5 heterografts and 5 cold storage grafts, some of the latter ovaries being several weeks old.

Tuffier, (*Bull. Soc. Chir., Paris*, 1911) who has done some 130 cases, merely slips the ovary into the subcutaneous tissue of the abdominal wall without suture. In his experience with this method the grafts generally live, at first absorbing nutrition by imbibition, though quickly new vessels are formed to supply them. Knauer and Riffert, experimenting on animals, have found these new vessels in four and seven days respectively.

While some men transplant the whole ovary, most experimenters prefer a segment with a cut surface to come into apposition with the raw nourishing surface. Martin, who has probably done more ovarian grafting than any man in

this country, advises grafts not more than $\frac{1}{8}$ inch thick.

The piece of ovary may be grafted anywhere. Tuffier, as I have said, places it in the subcutaneous tissue of the abdominal wall, or as in his later cases, under the sheath of the external oblique, regarding that as affording a condition biologically perfect for the nourishment of the graft, where it will be freely bathed in lymph. Cramer prefers the preperitoneal space beneath the rectus or the subserous tissue of the anterior uterine wall. Kronig and Pankow also prefer the anterior pouch of Douglas. Mauclaire and Marchese like the anterior sheath of the rectus. Dudley Palmer (*Post Graduate*, 1900) sewed a piece of ovary into the uterus, so that it presented in the uterine cavity.

Engel (*Berl. Klin. Wochenschr.*, 1912) implanted a heterograft into the uterine stump of a woman upon whom he had done a double ovariectomy and hysterectomy three years previously. She had been having severe hot flashes and nervous disturbances. Seven weeks later she was having no hot flashes and eventually recovered completely. Of course time and suggestion may have played their parts. Other cases of distinct success with heterografts might be cited. Glass (*N. Y. Med. Jour.*, 1899) transplanted a whole ovary into a woman who two years after a double ovariectomy was suffering from exaggerated symptoms of the menopause. Six days later she had erotic sensations(!), menstruated in 15 days and eight months later was recovered.

Estes (*Penn. Med. Jour.* 1909) in forty cases (humans) implanted the ovary in the site of the tubal insertion, making a wedge shaped pocket in the uterine muscle to receive it, but apparently not opening the uterine cavity. As he says two cases of pregnancy were seen in cases where this procedure was used it is evident that the uterine portion of the tube remained patent.

Uffreduzzi (*Ann. di Obstetrica*, 1911) implanted portions of ovary in the uterine cornua of dogs (20 cases). All showed when killed later at various periods a necrobiosis (degree not stated) and according to him in not a single case were the conditions such that ovulation could have taken place into the uterine cavity nor were in any case any corpora lutea found in the part of the ovary nearest the uterus. This observer seems somewhat of a pessimist, as he makes the further observation that artificial stomata built in clubbed Fallopian tubes will always close up before long, a statement by no means borne out by my personal experience of several pregnancies following the building of such artificial stomata. Anyway Estes' two cases of pregnancy following the implantation of ovarian tissue in the uterine cornua sufficiently discredit Uffreduzzi's statement that uniformly such grafts cannot ovulate into the uterus, in the human at any rate.

Frank (*Centrbl. f. Gyn.*, 1898) was appar-

ently the first to implant ovarian grafts into the uterus or stump of oviduct. Morris and many others have found the broad ligament the best seat for transplantation, while Foa prefers the posterior pouch of Douglas, and Grigorieff and Ribbert the mesentery. For purposes of experimental ovarian tissue has been grafted into the most out-of-the-way places (chiefly, of course, in animals) such as the muscles of the upper thigh (Cramer, Kayser), between the breasts (Brewitt), and into the kidneys, liver, spleen, brain, and doubtless still others. My feeling is that except for the indication of sterility the graft should be placed in a position where it will not be confined so as to allow for a periodic congestion at the menstrual period. Hence I should look askance at transplanting into such places as the abdominal wall and elect for instance the pocket between the insertion of the round ligament and the Fallopian tube. Of course I am not blind to the fact that should anything go wrong with the graft it is conveniently reached if merely in the abdominal wall. There may be something in Lukasevitch's suggestion (*Vratch*, 1901) that it is wise to place the graft as near as possible to its original site. If the tube has been removed Estes' plan of preparing a wedge-shaped bed for it in the cornu appeals to me. Extreme attention to asepsis is absolutely requisite, the graft should be disassociated from the body as short a time as possible and as few sutures should be used as will suffice to anchor the graft in place, and these should be as superficial as may be. Lukasevitch also proposed to transplant a segment of each ovary in case one graft should die.

Pankow (*Zentrbl. f. Gyn.*, 1908) claims that as the ovary consists of two kinds of tissue, the glandular with its internal secretion, and secondly, the follicular apparatus, which generally necroses anyway and in most of the cases operated upon is not needed, the best results will be obtained if it is possible to destroy this glandular tissue while leaving unimpaired the tissue in charge of the internal secretion. Accordingly, in two cases he exposed the ovaries to be transplanted to a moderately soft Roentgen tube at 25 cm. for ten minutes and then transplanted them. The importance of this procedure is still very much *sub judice*.

One other matter connected with technic is the necessity of exercising the greatest care as to the donor in the case of heterografts. I can well imagine that a suit for malpractice would stand should the donor prove to be a syphilitic. Most of the men who have used heterografts in recent years have availed themselves of the Wassermann reaction.

Internal Secretion. While exact knowledge of the qualities and influence of the much discussed ovarian secretion is still sadly wanting, enough is known about it since Fraenkel's paper in 1913 to warrant the statement that it exerts a profound influence upon the female economy and that after functional ovarian death at the

menopause, rightly called the grand climacteric, a woman's physiological life undergoes great modification. The careful researches of Limon and Branca seem to prove that while the cortical portion of the ovary is concerned chiefly with childbearing there is secreted from its interstitial cells a something which, to quote Sauvé, aids in the development of the skeleton, for according to him castrated women are smaller than non-castrated, has influence on the circulating system, increasing the bulk of blood and its degree of hemoglobin, is a powerful controller of the nervous system, works upon various secretions, and has such influence upon the activity of the kidneys (phosphaturia diminishing after removal of ovaries) that by simply measuring the amount of phosphates eliminated Jandy professes to be able to tell whether an ovarian graft has taken or not. Whether or no the ovarian secretion possesses quite such far-reaching qualities it certainly has its great importance, and most men agree that total removal of the ovaries, especially in very young women is followed in many cases by the train of symptoms grouped under the term postoperative or premature menopause, of which gradual atrophy of the genitals and marked increase of fat are the chief signs and marked nervous phenomena the chief symptoms. In other words, the phenomena characteristic of the natural menopause are apt to be compressed into a few months instead of being spread out over a number of years. I know many men are fortunate enough to have no reason to attach much importance to the premature menopause and say their patients never have any trouble to amount to anything. I may have been unfortunate, but I have seen many such cases, suffering to a degree that is very seldom seen in connection with the natural menopause. Looking over the literature, I am rather struck by the fact that the general surgeon, concerned chiefly with the immediate outcome of his operation, sees but little of the premature menopause, while the gynecologist, who is apt to have opportunities for more careful after-study of his cases sees comparatively very many of them. I do not deny that a great deal of nonsense has been written about the premature menopause and many nervous symptoms referred to castration, where probably the presence or absence of the ovaries had but little to do with the matter, except perhaps by suggestion; but on the other hand a sufficiency of cases have made most of us very loath to sacrifice both ovaries, especially in young women. In certain cases, however, for one reason or another, it seems inadvisable to leave either ovary *in situ*, and it is in these cases that ovarian transplantation has chiefly been done, in the hope that thereby the troubles grouped under the term premature menopause would be avoided. It is somewhat hard to draw a conclusion as to how far this hope has been justified. In the first place, there can be little doubt but that in many of the cases in which transplantation was per-

formed at least one ovary or part of one might perfectly well have been left in its original place and that the operation was unnecessary. I notice French surgeons seem to hesitate to leave healthy ovaries. One writer of repute says that the ovaries must be removed in every case of bilateral salpingo-ovaritis and with every uterine tumor of any size. In removing tubes, I have often left the ovaries and hardly ever remove them in hysterectomies or myomectomies in young women. In these uncalled for transplantations, as a good many ovarian grafts die, we have a large series of cases of ovarian insufficiency which would not have existed had transplantation not been done, which, of course, vitiates statistics. On the other hand, while enthusiasts report cases of profound nervous symptoms, lasting for months and even years, disappearing promptly after a successful grafting, and in a few cases even reestablishment of the long absent menstrual function, other men of experience feel that any good effect from a graft is so problematical that it is not worth doing. This question of the menstrual function after grafts shows the dangers of statistics. A distinguished French opponent of ovarian transplantation states that as menstruation continues in, at most, 17% of the cases of grafting and also continues in some 20% of cases of double ovariectomy anyway, the grafting is of little use. Now I doubt very much that it is the experience of American gynecologists that menstruation continues in 20% of their double ovariectomies. In my limited experience 1 or 2% would be a much truer figure. Of course most of these cases mean that a piece of ovary was left. I remember years ago, when bilateral ovariectomy was more common, Dr. Whitney told me that it was a common experience to find cut surfaces on examining such ovaries. In other cases of menstruation continuing after the removal of ovarian cysts, the cyst may very well have been parovarian and not recognized as such. The truth of the matter as far as grafting for the avoidance of the premature menopause is concerned seems to be about as follows: While in the long run it is very unsatisfactory and transplanted ovaries generally die after a year or so, they are apt to remain alive and functioning for about that time and so allow nature to accommodate itself to the changed conditions slowly instead of being forced to readjust itself precipitously. If, then, it is necessary for any reason to remove both ovaries in a young woman, and they are healthy as far as can be seen, there is a certain justification of grafting a portion of one ovary, preferably as near its original site as possible. To be sure, there will very likely be certain inconveniences and discomforts caused by the transplanted ovary, but their sum will generally amount to comparatively little as contrasted with the sum of the discomforts of a well marked case of premature menopause. Such discomforts will be those to be expected from the periodical swelling of an organ more or less

confined, if the ovary is slipped under the sheath of the external oblique, for example. Then also such ovaries as they atrophy may cause trouble, as in my own case. Other bad results mentioned are dysmenorrhea (Morris, Martin), vesical troubles (Pankow), thrombophlebitis (Morris), results due partly to the seat of transplantation and partly to extrinsic causes. But as I say, the sum of such bad results seems small in comparison with the probable gain. Thus in 59 reported autografts, 15 cases may be said to have had permanent good health follow, *i.e.* normal menstruation kept up, while most of the failures did not impress me as being much worse than they would have anyway. Of 14 heterografts only four could be regarded as successful and that only questionably. It is sufficient only to mention some of the indications for which ovarian grafting has been tried, such as menorrhagia, amenorrhea, osteomalacia, sexual frigidity, nymphomania, and chlorosis. I have little sympathy with such operative experimentation.

There is, however, one indication for ovarian transplantation which seems to me thoroughly justifiable. I refer to operations done with the hope of pregnancy ensuing.

The problem presents itself under two aspects: Where a woman still has one or both ovaries left and it is a question of rendering it possible for ova to find their way into the uterine cavity, and where it is a question of transplanting an ovary from another woman. In this latter class the utility of heterografts is a questionable one. As Martin says, there is a very distinct antagonism of the blood and tissues of one individual to those of another, while there is practically no such antagonism between the blood and tissues of an individual to grafts from her own ovary. Results of heterografting are in the main very disappointing, even as regards menstruation, but Martin believes that they would be more satisfactory if the grafting were done sooner after the original loss of the ovaries, before the patient has lost the habit of menstruating, so to say. In one case of heterografting he had, however, menstruation start up and continue some months after a year's abeyance. The problem further arises in the very unlikely event of a living child being the result of a heterograft that there may be some difficulty in saying just whose child it is. This may be only an academic question, but that it is a real one was shown by a somewhat acrimonious discussion at the Edinboro Medical Society when such a case was reported. While the child would of course theoretically be the offspring of the donor of the ovary, I think most women would be content to feel that if they had given birth to it they were justified in regarding it as their child. Interesting questions of heredity naturally might arise. There have been reported three cases of living children born as the result of heterografting and three or four pregnancies resulting in miscarriages. Of course I admit that in these cases we

must always face the suspicion that a tiny piece of the original ovary was left behind. Sauvé rather ungenerously remarks that pregnancies following heterografts should be viewed with suspicion as most of them come from the country, where in some thirty published cases pregnancy has followed "castration" without grafts. When, however, there has been a post-operative amenorrhea for a year or two, and then after a heterograft menstruation followed by conception has occurred the case seems proven.

A dozen or more cases of pregnancy following autografts, however, seem to justify the operation, in spite of most of them having miscarried. The problem may present itself in two ways. In the contingency of its being necessary to remove the ovaries in a case in which the tubes are patent it is a very simple thing to graft a portion of the ovary near the orifice of the tube or to do so in cases where it is necessary to amputate more or less of the tube. In cases, however, where the tube has been removed well into the uterine cornu the problem is a more complicated one and it is a case of this latter category that I shall report tonight.

I reported the following case briefly in this society some years ago, but have not published it. The procedure I followed was original as far as I then knew, as I had not heard of the somewhat similar operations by Frank in 1898 and Dudley in 1900.

F. D. was first seen April, 1904. She was a strong woman of 24. She had had both tubes and the left ovary removed by Dr. Beach three years previously for an acute gonorrheal salpingitis of a month's duration. A month later no gonococci were to be found and when I saw her she had been menstruating normally and was in perfect health, with no evidence of gonorrhea. Matrimony was now contemplated but it was contingent upon its being at least possible for her to become pregnant. She had, by the way, occasional slight pains in the region of the appendix and right ovary, which was fixed and prolapsed. Understanding fully the probability of nonsuccess she demanded an operation.

April 12, 1904, assisted by Dr. C. O. Kepler, I found the omentum and the intestines densely adherent to the old scar and bladder and fundus. In breaking them up the outer intestinal wall was injured in two places and overcast with catgut. The remaining right ovary was freed with much difficulty and proved to be a pretty poor one, being riddled with cysts, especially in its right half. The tubal stumps were about half an inch long. The right tubal stump was divided downwards until the uterine cavity was laid well open. The ovary was then bisected from above downwards, carrying the incision well down into the broad ligament, so that each half of the ovary retained at least some of its original blood supply. The cut surface of the distal half was then closed with catgut, leaving that half to function in case the other half died. The proximal segment of the ovary was then introduced into the cut in the uterine wall and lightly anchored in place with fine catgut, in such a way that most of its cortex projected into the uterine cavity. The uterine wall was then brought to-

gether over it and its pedicle, in which there was a fairly good sized artery, with deep and superficial layers of catgut. The pedicle was sufficiently long not to pull the fundus over to the right at all. A chronic appendix was then removed.

Six days later a pelvic abscess was drained by the vagina. A month after the operation she menstruated in perfect comfort, more so than for three years.

I saw her again in January, 1905. She had been menstruating regularly but for the last few months with increasing pain, and finding a mass to the right of the uterus I opened her again and removed a shell representing the degenerated remnants of the piece of ovary I left *in situ* and a peritoneal cyst the size of a child's fist. I examined the seat of the transplanted ovary with much care but could find nothing abnormal nor any trace of its pedicle, which may have been lost in the many adhesions present. At the same time a small ventral hernia was closed. She made a good recovery but did not menstruate for four months. She was then put on various emmenagogues and on May 25 flowed for one day. In June, July and August she flowed normally and evidently the transplanted ovary was working perfectly. She was unwell Aug. 1 and on Nov. 4 I received a letter from her attending physician from which I quote. "She now comes to me with symptoms of pregnancy and examination shows an enlargement of the uterus, bluish appearance of the cervix and labia. She has considerable nausea and has noticed an enlargement of the waist." A letter from the patient makes the diagnosis of pregnancy even more definite, so much so that one of the best obstetricians in America was engaged to attend at her confinement. My correspondent also speaks of a mass on the left side of the uterus "which worries him a little." "This mass is nodular with rather dense adhesions about it, yet it is not tender and she runs no temperature." This putative pregnancy was sixteen months after the transplantation. Everything went as should a normal pregnancy till Dec. 12, three and a half months after the last menstruation, when she passed with some hemorrhage a mass of detritus and the uterus rapidly decreased in size. In view of the physician's report and what took place it seems fair to regard this as the abortion of an early pregnancy, retained for some time after the death of the fetus. In January she flowed and continued to do so but with increasing irregularity and nervous disturbances. About this time another surgeon removed some more peritoneal cysts, the mass to the left of the uterus my correspondent had spoken of.

Menstruation stopped entirely February, 1909 and I saw her in May. She was then the picture of health but a nervous wreck and her life a torment with hot flashes, eye ache and other symptoms of the premature menopause. She was now twenty-six. After she had been on corpora lutea for a time with little or no benefit, I advised a hysterectomy, in spite of her urging me strongly to transplant another portion of ovary from another woman, for she was by no means discouraged. Hysterectomy was done in February, 1911 in a western city and I understand she died thirty-six hours later of streptococcal infection.

If this case was pregnant as seems probable, and she had not aborted, the interesting question arises as to what would have been the course of labor. It would also seem to bring out that the tube plays

merely an accidental part in conception if, as seems agreed, conception usually takes place in it. While the untoward final result in this case is to be deplored, I confess to a desire to further experimentation.

A STUDY OF THE EPILEPSY OF DOSTOJEWSKY.*

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FOR some time past I have been interested in a study of the psychogenic factors of epilepsy. First I made an intensive research of the everyday personality of the epileptic before the convulsive part of his malady had developed. The material consisted of about twenty-five cases carefully collected and controlled. As the result of that study I found there was a fairly definite type of makeup.¹ From the viewpoint of that study I undertook to analyze many of the individual cases still more in detail; I found that the essential defect in the epileptic makeup was in the affective sphere of the mind; there existed an emotional infantilism due to a defect in development of the psychosexual life. I was further able, by dream analysis and by close study of the minor, and in some instances of the major attacks, to detect an analogous striving of the unconscious in the fit not unlike that of the dream, the two states not only frequently corresponded in content but were often reciprocative. In other words, the epileptic attack was a libidinous satisfaction to the epileptic individual and the fit possessed a varied yet thinly disguised sexual content of the dream, only the former was much more intense and complete and therefore not so often recoverable in memory content after the attack had passed. It was not only a wish but a fulfillment. It was also found both in the dream and in the analyzable epileptic episodes (composed of psychic and minor fits mostly) that the libidinous strivings were simple and infantile. Viewed in this light the settings of the fit led one to believe the epileptic attack was an unconscious desire to return to the state of the libido comparable or identical with that of intra metroerotism. This and many other interesting facts were brought out. While the study was in progress it occurred to me to see how many great persons in history may have shown their disease in such a manner as to support this theory. Obviously many historical inaccuracies will creep in to the published accounts of such individuals, but inasmuch as many writers have made a precise and detailed analysis of such, the study will not be without interest.

I shall undertake to give a brief sketch of some of the salient points in the epi-

lepsy of the late Russian novelist, Dostojewsky, who was long a sufferer from the malady. I have been obliged to depend largely upon translations made for me from the Russian literature and on the admirable essay of the subject by Segaloff, whose work appeared several years ago in Munich. Doubtless many have already read this work, but for those who have not, these notes may be of some interest. Segaloff's treatment of the subject is in many respects so excellent an illustration of my theory of the mechanism of epilepsy and its essential contentions of this malady that I shall offer no apologies for commenting upon it at this time. The main tenets of my thesis but briefly outlined in its main arguments and conclusions I here present as a sort of preface sketch to this dissertation.

Dostojewsky's romances abound in psychopathic characters. Russian alienists long marvelled at his expert knowledge of psychopathology, which he evidently obtained from self study. Even in early childhood he had hallucinations and it is generally known that he was epileptic.

Strakoff's recollections of him state that all which Dostojewsky wrote had been lived through by him with fervor and devotion. Dostojewsky was one of the most subjective of authors, whose novel characters were created from his own. His gloomy moods appeared in his works.

As a rule Dostojewsky had convulsions monthly, sometimes, however, twice a week. When he lived abroad, in a milder climate and was spared from sources of excitement, his attacks were much less frequent—up to intervals of four months intervened. There were always prodromal feelings before attacks although at times even he was deceived. Strakoff was present at an attack in 1865. The novelist visited him toward 11 p. m. and a lively conversation was soon in progress. The subject is not recalled, but it was an abstract one and weighty. Dostojewsky became enthusiastic and paced the floor. In enraptured tones he spoke of things sublime. As Strakoff made a remark of approval, the novelist turned his inspired face full upon him, and his exalted excitement was readily seen. Dostojewsky paused for a moment as if in search of a word, with open mouth, but no utterance followed. Strakoff felt that something was about to happen. Suddenly from his open mouth came a peculiar, prolonged and meaningless cry and Dostojewsky fell senseless to the floor. The attack was not a violent one but he had convulsions and foamed at the mouth.

Dostojewsky told Strakoff that he always had a feeling of ecstasy before these attacks. His sensations of happiness were so intense that no normal mind could experience them. He said his feelings were in complete harmony with the world, and for a few seconds of them one would give ten years of his life. The attacks sometimes caused slight injuries, and the convulsions were followed by muscular pains. There was often a temporary failure of memory and for

* Read in abstract before New York Neurological Society, Dec. 1, 1914.

¹ A Personality Study of the Epileptic Constitution, Amer. Jour. Med. Sci., Nov., 1914, No. 5.

two or three days he felt quite prostrated, and very melancholy. He was possessed by a certain anguish and irritability which could hardly be mastered. He felt himself a criminal guilty of some offense unknown to him. One of his characters in "The Karamasoff Brothers" suffers in the same way and for the same reason. Milukoff, another who knew him, speaks of certain alleged peculiarities of Dostojewsky, such as avoiding acquaintances on the street, refusing to acknowledge greetings in society (he even would ask, "who is that man," when greeted by some friend). Milukoff admits that such things may have occurred, but is certain that if Dostojewsky behaved in that manner it was after an attack. Dostojewsky had once taken tea at Milukoff's house, and just as a glass was handed to him he turned pale, began to totter and as soon as he was led to a sofa he had a fit. Fifteen minutes later he asked what had befallen him. When told he should stay all night he refused decidedly, saying he must go home, but couldn't or wouldn't give a reason for going. He even refused a carriage to the station, saying he needed the walk. His host nevertheless went along. As they were passing through a park Dostojewsky came to a halt and whispered that he felt an attack coming on. He was led to a bench but no attack appeared. There were two similar false alarms before Dostojewsky reached the station where a relative was found who took the train with him. Next day Milukoff visited Dostojewsky at his home. The latter was very weak and did not at first recognize Milukoff.

It appears from Solowjew that Dostojewsky had his first attack while in exile and was never afterwards free. He remembered down to the finest details everything which happened to him before the disease appeared,—every event in his life, every face, everything which he had ever read or heard. But of that which happened after the first attack, much has been forgotten. He often completely forgot those who had been well known to him. He even forgot much that he himself wrote. In writing his romance, "The Devil," the contents of the book were forgotten and he often had to reread the preceding chapters before he could go ahead with the story.

Solowjew states that after a crisis Dostojewsky was often insufferable. His nervous state was so marked that he was quite irresponsible. He often came in the room like a black cloud, forgot to greet people and sought opportunities to quarrel. It appeared to Dostojewsky that everything which was said to him was vexing, insulting, or it was done to excite him. The conversation had to be brought to his pet subjects about which Dostojewsky would then become enthused. After an hour of such gentle treatment Dostojewsky would be in the best humor. Only his pallor, brilliant eyes and heavy breathing showed that he was mentally disturbed. Such changes of mood are often found in Dostojewsky's books

In the youthful recollections of Sonia Kowalewsky she says that she and her sister knew of Dostojewsky's disease, but never dared to speak to him of it. He himself once introduced the subject and told how the first attack came about. It was something as follows: While in exile he had been punished in the house of correction. He was isolated from his fellow beings and could exchange ideas with no rational person. Suddenly an old friend visited him, on an Easter night. Forgetting the sacredness of the occasion, both began to converse on literature, art, philosophy and religion, during which hours passed. The friend was an atheist while Dostojewsky was a believer in Christ and immortality, and an argument started. Dostojewsky became greatly excited. It was now early morning and the bells began to call the faithful to arise. Dostojewsky felt a sense of ecstasy, thought he was in Paradise (as was also Mohammed, another epileptic). During this ecstasy the first attack appeared.

While he spoke thus to the sisters, his mouth failed to articulate, his facial muscles twitched, he evidently saw the fear and anxiety in the girls' faces, they feared that an attack was due. He smiled and told them not to be afraid as he always knew when an attack was pending. However, he told them later that he had had an attack at the time.

From the preceding testimony there can be no doubt that Dostojewsky had epileptic attacks. In the first attack the sound of church bells was an auditory aura. Dostojewsky admitted afterward that no bells really rang. The unspeakably ecstatic feeling was associated with nearness to Heaven or Paradise.

For two or three days after the attack Dostojewsky was in the twilight state. The morose nature and great irritability showed the extraordinary action of the disease upon him. He wrote "The Devil" when his disease was beginning to tell on him, as was plainly evident in the character of the book. The circumstantial, detailed treatment is characteristic of the epileptic activity, and as a result the work lacks in cohesiveness. Malice and intolerance are also shown to a remarkable degree.

The preceding covers the period of 1860 to 1880. It should be added that Dostojewsky had a mania for roulette. In 1863 he started on a tour but lost all his money in this way, and this happened more than once. During this period the attacks were unusually frequent, and he was doubtless insane as a result. He had a fixed belief that he would win and once was 4,000 francs ahead and not playing. His wife begged him to be satisfied, but as he had sometimes been 30,000 francs ahead while playing, this was impossible. He lost everything, even his own and his wife's personal belongings. How infantile, foolish or defective this may have been I shall leave others to judge. The indictment is only so strong as one is inclined to personally make it.

As far as known Dostojewsky was very temperate in both eating and drinking. He was fond of sweets, was a heavy smoker and consumed much tea and coffee. But little is known of any affairs with women. As already stated, he was married. He was born in Moscow in 1823 and was the son of a physician. Their circumstances in life were moderate and Dostojewsky led a life confined in small compass. Not much is known of his childhood. The mother was sickly and died of consumption in 1836, so young that Dostojewsky was raised partly by nurses who told him gruesome stories. He was very impressionable and imitative, and was on the lookout for the novel. The father undertook the boy's education. He was a stern man, a military physician, and was a stickler for discipline.

In 1831 the boy moved to the country and there plunged into rural life, developing a love for nature, and became absorbed in folklore from peasants. He was much given to reverie. As a reader he was precocious and he limited himself to literature proper. He was a great admirer of Pushkin, whose death in a duel occurred near that of his mother's. These deaths gave him a great shock. It is authentically reported that he lost his voice, probably a psychogenic episode.

In 1837, when Dostojewsky was nearly fifteen, he entered the School of Engineering at Petersburg and remained four years there, but found the discipline very severe. He developed tuberculous symptoms which would seem to have been little more than scrofulous glands. His cough may have been due to excessive smoking. He remained an engineer only until 1844, when he at once devoted himself to his first novel, "Poor Folks." Soon afterwards he became a member of a literary coterie to which belonged Tolstoi and other to-be-famous men. His novels were very successful and he was a prolific writer.

Long before his first epileptic attack he was the victim of so-called neurasthenia or some hypochondria. An alarming symptom was a lethargic sleep. A state of depression coupled with anxiety about the future troubled him. At times he lived in a dream for long periods. Yet in 1849, when he had trouble with the Government, all his mental symptoms left him and he began to show admirable qualities; he exhibited patience, tranquillity, etc. He believed that his arrest saved his reason. Evidently his numerous nervous and mental symptoms were all psychogenic. His lethargic sleeps, however suggest that he was already on the way to an epileptic career. One medical man who treated him before his exile pronounced him of the epileptic temperament, and said that some of his disturbed episodes were so severe that his mental integrity was threatened.

In Dostojewsky's works we find no less than five types of epileptics. In "The Landlady," written in 1874, before he had developed his full

talent, is a character named Murin, an old man, in whom we see the "epileptic character" without any effort. He has the moods of Dostojewsky when the latter was young. The attacks described, however, are crude, as any layman might view them. The influence of alcohol on epilepsy is shown, Murin has a seizure after drinking a glass of wine.

The second type is represented by "Nelly" in a work written in 1861 after Dostojewsky had been banished and had had time to study his own case. The influence of heredity is shown in this work. The grandfather (maternal?) was "odd." The mother was exalted, readily excited and inclined to reveries. Her stubbornness in holding certain ethical views was readily mistaken for a strong will. The child's life was miserable and became worse after the mother's death. She was of pronounced epileptic character. Her attacks are described as follows: "After a prolonged stare (at some person) she gave a fearful cry, her face was distorted, and she fell to the floor. After the convulsions she looked fixedly at the same person as if trying to collect her thoughts. At last her face lighted up as she began to comprehend. For a long time she could not collect her thoughts and murmured meaningless words. For a long time she did not fully regain her senses. Reality was much mixed with fancies, and it seemed that something fearful excited her soul. Finally she fell into a deep sleep. She was pale and her lips were still bleeding. Her face, despite the sleep, showed great fear and a painful longing. Once when Nelly was requested by the physician to take medicine, she spat it out three times in succession in his face. Astonished at his good nature she began to sob in despair." In this work we see excitability, moodiness, sensitiveness, suspicion, want of psychic balance and endless oscillation between exaltation and apathy.

The third type is seen in "The Idiot" (1868). The boy had had attacks since earliest childhood. Sent to Switzerland for treatment he improved so much under expert care that he figures in the story as a well developed human being. His appearance betrayed nothing. His eyes were large and blue with a leaden color of the iris and a fixed look which to some suggested epilepsy. There was in him something silent and melancholy. Describing his attacks in childhood he said that after a series of violent seizures he was left apathetic, without recollection. His brain worked, but not logically. He could not connect more than two or three ideas. As the attacks became weaker, his condition improved correspondingly. An inexpressible longing possessed him. Often he wished to weep. He marvelled at everything, was excited over everything. It depressed him very much because all about him was strange. This epileptic, the Count Mischkin, is a good man, and has fine feelings. Abnormal only is his naiveté, which often borders on stupidity. His will is

weak, so that it lends him something boyish and immature. Like Dostojewsky himself, he writes a beautiful hand.

Associated with Mischkin are accounts of the twilight state which are of great value to the psychiatrist; also the feelings and thoughts of an epileptic in his "sound" movements; thus, to quote Dostojewsky's text, "At times he looked about him with great curiosity, but most frequently was quite indifferent, not even knowing where he himself was going. He lived in painful excitement and restlessness, wishing to be alone, yet finding solitude unbearable. Presently he finds himself occupied with something, a former employment. He has been so occupied for a long time but has not known it. He begins to seek something but at once forgets it. After half an hour he resumes the search restlessly. He knew that before his attacks he is distracted, often confusing objects and faces and requiring all his efforts to prevent blunders. It was necessary to give his full attention for a long time to everything he saw. In his epileptic states there would suddenly be a clearing up of consciousness, when his mind would glow and all his old powers return. The sensation of living, of self consciousness, would be accentuated tenfold. These periods, however, lasted but an instant. During their existence all excitement, doubt, restlessness vanished suddenly, replaced by full harmony, joy and hope. These bright moments, however, really presaged convulsive attacks and therefore were unendurable. He looked back on them, however, as glimpses of a higher existence but nevertheless pathological. This was the paradox of his disease. There could be no doubt of the beauty of these moments. They were not like the sensations due to alcohol or opium. One such experience compensated for all the evil of the disease and was worth a whole lifetime. In such moments he felt that some day time would cease to exist." Thus one catches a flavor also of Dostojewsky's style of treatment of his characters. Continuing one reads, "No doubt Mohammed's religious faith was based on these experiences, thought Mischkin. He had similar moments. The soul was flooded with a wonderful inner light. Yet the time required was but half a second! This moment passed at once into the cry of an epileptic seizure. Everything human has vanished for the time. The voice which is heard is not human. In one attack Mischkin falls down a stone stairway. Once when in company Mischkin was excitedly discussing a subject. Gradually a feeling of infinite happiness came over him. He ceased speaking save to answer questions and at last became completely silent. He sat quietly and listened, and seemed to sink in happiness. A sublime inspiration filled him more and more, and he was ready at any moment to 'burst into flame.' Then he began to declaim with passion, strove for breath, was as if suffocated with the excess of goodness in his heart. He ceased to breathe, became pale,

seated himself and began to look about, regardless, with flaming eyes. His word storm, in which one thought followed so quickly upon another, forboded some danger, and in fact he shattered a vase. When this was past he felt himself struck to the heart, filled with mystic horror. Another instant and this gave way to a feeling of light, joy and inspiration. Then he began to breathe again, taking deep breaths. The expected severe attack had not taken place. For a long time he remained confused. He beheld and understood what was going on but seemed to himself to be only an unseen onlooker, taking no part in anything. Then once more he began to declaim. He spoke with increasing inspiration, saying things he did not intend. Another period of full ecstasy followed and then the attack came. After a series of strong psychic disturbances, minor attacks and psychic episodes his reason began to darken." At the end of the story we find him in a Swiss institute hopelessly demented.

The fourth type of epileptic is Kiriloff in "The Devil" (1871-2). To quote text from Dostojewsky's novel, "Externally he presented nothing singular but his speech is striking. He speaks in monosyllables or broken sentences and one notices at once that his thinking is difficult. His ideas are associated in the strangest fashion. His contemplations are religious-mystic, which are rooted in his illusions and hallucinations. He has no convulsions but psychic equivalents. He says of these, 'For seconds, not over five or six in all, in which there is a sudden feeling of infinite harmony which fills the whole of existence.' This feeling is not earthly nor is it necessarily heavenly. But an earthly being cannot tolerate it, and must be physically transformed or perish. It is as if one suddenly felt within him the whole of Nature and said, 'Yes, this is Truth.' So the Creator might have spoken as he finished the world. Here is no commotion, only simple joy. The feeling is not only that, but something higher. Terrible it is that these feelings are so clear, this joy so powerful. If this mood should last over five seconds the soul could not endure it and must perish. During these few seconds one lives through an entire life. Of what need is posterity, when the entire goal of life has been attained." We find that Kiriloff has one or two of these experiences weekly, and they never usher in severe attacks. He was told that they would do so eventually. Mohammed flew through the entire heavens before the water could flow from a can. It required five seconds to empty the can, and for Mohammed to have an epileptic fit.

In "The Karamasoff Brothers" (1879-80) we find Smerdjakoff, a classical epileptic. His mother, an idiot, wandered about clad only in a chemise. His father was a debauche. The boy was born in a truck garden and he was raised by the brothers. At 21 he was shy and silent. He was, however, high spirited and apparently despised all mankind. In his childhood he killed

eats and buried them with pomp. Once when whipped he crawled into a corner where for a week he looked vexedly at all people. Once he took a box on the ear calmly but afterwards went into a corner as before. After a similar experience he had his first convulsion and they continued throughout his life, both mild and severe in type. In time he came to despise food. He would toy with a mouthful for a long time, finally deciding to eat it. After several years of instruction he changed greatly, aged rapidly, was pale and wrinkled and had the look of a eunuch. Visiting Moscow he took but little interest in it but learned to appreciate good clothes and clean linen. He became an excellent cook and his other interests were clothing, pomades, perfumery, etc. Men and women he despised alike.

Finally Smerdjakoff had a trick of gazing on the ground for some minutes. Walking along he would suddenly stop, lower his head and stare downward for ten minutes. Whether he simply stared or was fixed by something in his own mind puzzled those who saw him. Dostojewsky says in the text, "These people are not uncommon. It is probable that he was collecting certain impressions. As a result at some remote period an epileptic might begin a voyage, burn a house, etc." However, one of the brothers upon questioning him found always a deep pathological self love.

What are the special points brought out in this cursory study of Dostojewsky, especially in the light of our present day knowledge of epilepsy? First, that he had the infantile type of mentality. He reckoned or dated all things from his own inner consciousness. He was intensely egoistic, most of his reported conversations were but monologues on his part. Still earlier he was intensively devoted to his mother; had a psychogenic or hysterical episode after her death; had an intense antagonism to his father who was a stern disciplinarian and from whom he revolted to his tutors who fed him upon the gruesome tales his fancy craved. He could not take on or submit to the onerous discipline in the engineering school and left it with a thorough distaste for it owing to the strictness of the discipline. He continued to develop his self-centered characteristics, failed to observe the conventions of society, did not recognize friends in these fits of abstraction. He inconvenienced his friends by requiring the household arrangements to be changed to suit his own convenience. He had childish tantrums and odd ways of defying the physician's prescriptions of foods. Quite some time before his epilepsy developed his personality underwent further changes, he had fits of depression and anxiety, lethargic sleep after which he seemed to strive to continue his life in a dream. He also had periods of extreme irritability, embittered himself with governmental authority and suffered in lonely exile. Here in the light of recent psychoanalytic research, one notes with interest that after a revolt

against the government, which is unconsciously the adult father, Dostojewsky at once lost the neurasthenic and hypochondriacal symptoms and became patient, tranquil, etc. Dostojewsky himself believes his mental integrity was saved by this action on his part. To an intense egoistic nature who suffers intensely under the chafing restrictions of the paternal rule the revolt against such authority often permits a freer range of the libido and the repressive symptoms before such an act of revolt often disappear completely. One cannot, however, be quite clear how much of the suppression of the libido was relieved, as it seems Dostojewsky's epilepsy also showed about this time, although in a somewhat masked form. He was definitely epileptic soon after he took up his life in exile, perhaps the attacks carried off much of the pent up repression of the libido as has been noted in many another epileptic. Often migraine attacks, lethargies and abstractions are to be found in the preconvulsive stage of an after frankly diagnosable epileptic.

The account of the first genuine attack, much of which was to recur in subsequent seizures, is characteristic. One should note especially, after long confinement, the expansion of the ego, possibly the inflation of the infantile unconscious in the term of Hoch; the meeting with an old friend; the religious controversy; the insistence of Dostojewsky in establishing the orthodox tenets of a paradise in the hereafter; the aura, and the inflation of the unconscious at the beginning of an attack. Again the feeling of oneness with truth and the eternal verities of the universe in the attack, and then Dostojewsky was in ecstacy of a minor attack. The expansion of his ego at the beginning of an attack (the sense of *allmacht*) the oneness with the peace, security and safety of paradise itself, strongly suggest the unconscious strivings to revive the infantile memories of the mother life and its paradoxical qualities. Regarding the latter, I hope at another time soon to dilate with greater emphasis in a comparative study of the epilepsies of St. Paul, Plutarch, Mother Ann Lee, Mohammed and even Joseph Smith, the latter of whom, as is not frequently known, died epileptic. In time it will probably seem less strange that much of our religious conception of Heaven which has been fashioned by epileptics out of their unconscious conceptions of the mother life should be so satisfying to the entire human family.

All of the outcroppings of Dostojewsky's egoistic and infantile feelings and ideas in the minor attacks and in the beginnings of the major attacks are over and over again elaborated in Dostojewsky's novels as we have seen. Lest too much stress be placed upon the epileptic's own responsibility and his shortcomings for his disease Dostojewsky now and then accounts for the epilepsy in many of his novel characters by family heredity from which his creations sprang.

We see in Dostojewsky's personality the dis-

organization of the mind, the replacement of bad judgment, faulty memory and childish reversions in character as the result of indulgences in his disease. The same is also portrayed in all his novel characters. Dostojewsky also mentions how his characters all mend when the individuals grow better of their disease. Yet the persistence of the naiveté, the weak and vacillating will, the boyishness and immaturity of Count Mischkin's mind under a partial restoration from his disease shows Dostojewsky's unconscious but deep appreciation of the infantile make-up of the epileptic constitution and probably of his own character as well.

Finally, it is interesting to note the probable unconscious workings in Dostojewsky's mind when he wrote "The Devil;" no psychoanalyst needs to be told that the devil is the father symbol in a derogatory sense. Dostojewsky often forgot the thread of the narrative in this story and had to reread much of the manuscript to finish the succeeding chapters. In it all lies a virile hate which Dostojewsky cannot repress or seems to make little effort to do so. It even goes far to mar an otherwise admirable piece of writing. The malice, hatred and intolerance shown in this novel is much more than the situation would ordinarily seem to demand. Dostojewsky told one friend that he so hated the book and its subject he could never reread it once it had been written.

OCCUPATIONAL DISEASE AND THE PUBLIC HEALTH.*

BY DONALD B. ARMSTRONG, M.D., NEW YORK,

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RHODE ISLAND in population and area is a small state, but the things she does are done in a big way. According to the 1910 census the state ranked fourteenth in the amount of its products turned out, this value totaling \$280,344,000. In the 1951 manufacturing establishments in the state there were in 1910, 114,000 wage earners, 46,000 of which were centered in Providence. From these figures one conclusion certainly is inevitable, and that is, that there is here a very evident necessity for control over the industrial welfare of the workers of the state. Nothing is more important to the public health than the conditions under which the average man earns his daily bread. It is in this field that conditions of good or evil have the most far-reaching influence upon the morbidity and mortality rates of the state and upon the health and welfare of the state's citizens.

From the point of view of responsibility another important factor is disclosed by the 1910

* Delivered at the Rhode Island Conference of Charities and Correction, Westerly, Rhode Island.

statistics,—a factor which may have been somewhat modified by the new State Labor Laws of 1912-13,—and that is the unusually large number of the especially susceptible women and children that is employed in the industries of Rhode Island. Of the total industrial population over 16 years of age, 36,000, or 32%, were women—the highest percentage in the United States. There were in that year 5,000 children under 16 years of age working in Rhode Island, 4% of the total industrial army,—the largest percentage in the United States with the exception of the child-labor cursed Southern states of North and South Carolina and Georgia. Unable to protect themselves, especially susceptible to many forms of industrial disease, this portion of the industrial workers makes a specially urgent appeal for protection to the conscience of the community.

It is not the purpose of this paper to discuss in particular Rhode Island conditions nor indeed to present in any detail the special features of occupational disease control. This is not an industrial hygiene conference and consequently for the most part the remarks shall be restricted to the more general features of the problem. It might be well, however, in so far as it is reasonable, to select our illustrations from the local field. Certain features of Rhode Island industry lend themselves most admirably to this treatment, as would be the case in any community.

As is universally known, the state (quoting again the 1910 census figures) was second to one other only in the manufacture of woolen and worsted goods and fifth in cotton textile manufacture. It is widely recognized that these industries offer especially difficult problems from the points of view of ventilation, dust control, etc., and in industrial hygiene are classified as dangerous trades, particularly because of the exposure to vegetable fibre and animal fibre dust. As might be expected, there results from this dust exposure an increased susceptibility of the pulmonary tissue to infection with a consequent increase in the morbidity and mortality rates from tuberculosis. It was found, for instance, in England and Wales in 1902, as reported by the Registrar General, that among males employed in cotton manufacture between the ages of 15 and 19, the death rate per hundred thousand from tuberculosis was 82 as compared with a rate of 54 for all occupied males of that same age period. The tuberculosis death rates for the woolen and worsted workers bore much the same relationship to the average, the rate per hundred thousand for woolen workers being 69 as compared with 54, the figures for all the workers in all industries. Undoubtedly the statistics for textile workers in this country, did we but have them, would illustrate fully as effectively the relation of this dusty trade to tuberculosis. It must be obvious that these conditions both at home and abroad cannot be remedied until certain specific preventive methods are universally applied. It is impossible to dis-

cuss in detail these corrective measures, but many of them are obvious, such as improved methods of ventilation, scientific dust removal, the wearing of respirators, the provision of eating and dressing rooms, general educational measures among employees by means of placards, leaflets, lectures, etc., a rigid and periodic medical examination, the discouraging of untimely female labor, the use of selected non-alcoholic labor, the development of intermittent labor with shorter hours and an attempt to retain regular employees, etc.

We are all aware that industrial disease is an important factor in the public health of any industrial community. Unfortunately, very few of our states have labor statistics sufficiently accurate to be used as a basis for determining the exact significance of this industrial disease factor. On the other hand, for the United States as a whole, based on extremely comprehensive German labor statistics, the American Association for Labor Legislation has estimated that by the 33,500,000 workers in the United States in 1910 there were lost because of sickness 284,000,000 days. It is estimated that the total financial loss in this year alone, including wages, loss to industry and medical cost, was \$772,857,000. This is not only a tremendous loss in efficiency, a great economic waste and an extremely poor conservation of human resources, but it is placing an unnatural limitation upon the social and economic welfare of the most vital part of our national structure—the great mass of workers. It is estimated conservatively that at least one-third of this disability is easily preventable.

It must be remembered that the average man in the United States is an industrial worker having a family depending for its health, progress and happiness to a large extent upon the man's working conditions. It is easy, no doubt, for social workers to understand the inevitable social and economic reaction between the work and the home. It must be remembered also that in certain instances industrial disease itself manages to reach indirectly through the worker to the home and its members. Everyone is familiar with the symptomatic picture of lead poisoning—its anemia, discolored gums, paralysis, blindness and insanity. This may be the picture of the male lead worker poisoned with the metal. On the other hand there are many cases on record where the disease has been acquired by the wife even when her only contact with lead industry was through the washing of her husband's lead-impregnated clothes, a poisoning preventable by the provision of factory dressing rooms and insistence on a change of outer garments upon leaving the factory. This is a particularly distressing picture because of the fact that lead poisoning is an affection of even greater seriousness in women than in men for they may add to the usual run of symptoms a sad succession of stillbirths and abortions. Sir Thomas Oliver has said that it

is practically impossible for a lead poisoned woman to give birth to a normal child.

It is impossible here to discuss in detail either the practical methods or the administrative principles of control. From a national and state point of view, however, it can be indicated in outline that the necessary controlling factors are somewhat as follows:

1. A thorough-going scientific labor law.
2. The coördination of authority.
3. Honest enforcement of the law including an adequate system of factory inspection.
4. Effective educational work.
5. An adequate system for the reporting of industrial disease.
6. A sickness and accident compensation system.

All Rhode Islanders are probably aware that one of the chief industries of their state is the dyeing of the textiles. As long ago as 1906 there were, according to the Rhode Island Commissioner of Industrial Statistics, 7,578 workers engaged in the dyeing trades. There is a particular poison associated with this industry as a result of the use of chrome dyes which, while not as serious as lead or phosphorous poisoning, is oftentimes incapacitating and consequently the cause of economic loss. The skin ulcers or chrome holes, as they are called, and the nasal septum perforations, are, on the other hand, easily prevented with the use of gloves and respirators. Another example of specific industrial danger to be found in the state is the manufacture of felt for felt hats where, in the impregnation of the hides with mercury, a dangerous poison is introduced into the felt and hat trades. The dust and fumes arising, if inhaled, absorbed or ingested, excite a frequent picture of mouth ulcers, insomnia, tremors, and sometimes fatal exhaustion, all of which can be prevented by dust removal, the use of gloves, mouth washes and tooth brushes and frequent dental and medical inspection.

Although there are many specific poisons occurring in industry, lead poisoning occurring itself in over 150 trades, nevertheless the great mass of workers are not subject to any special affection. From this point of view there would seem to be little foundation for the recent statement that under present social and economic conditions all industry is a disease. On the other hand, far outweighing the sequelae of specific toxemias are the more general evil results of unhygienic factory conditions and unwise labor stress such as the multiform neuroses and the cardiac and tubercular affections. We have touched briefly on the relationship of tuberculosis to the textile industry. A similar relationship is found wherever workers are employed under unhygienic and insanitary conditions for long periods.

As you probably know, Rhode Island leads the country in the manufacture of jewelry. In a statistical study conducted by Dr. Frederick L. Hoffman in 1908, it was found that in the

jewelry industry in the age period from 25 to 54, 59.5% of all workers dying, succumbed to tuberculosis, whereas the rate for the same age period for all industrial workers at that time was only 31.3%. Another Rhode Island industry is pearl and bone button making and it was found by Dr. Hoffman that for the workers in this industry for the age period 15 to 24, the percentage dying of tuberculosis was 50 as compared with a general rate for all the United States industrial workers of 27.8%.

Tuberculosis in industry is, of course, associated particularly with the dusty trades, and considering the various types of dusts that occur in industry such as the metallic, the mineral, the municipal, the vegetable and the animal, it is estimated that there are probably 800,000 workers engaged in dusty trades in the United States. In many factories and shops, moreover, we must add to the trade wastes the bad physiological and psychological effects of over-heating, the contamination from overcrowded workers and often excessive moisture.

We have not touched upon the degenerative affections and accidents consequent to the stress and strain of such an industry as that of iron and steel production. We have said nothing of the great field of industrial accidents and we must now ignore these industrial factors to consider for a minute what might be said to be, in roughest outline, the most urgent necessities of this state in the field of industrial welfare. There has not been time to make a careful study of local demands and consequently, to the knowledge of many present the following may be exceedingly incomplete.

In fifteen or more states there is a law relative to the reporting of occupational diseases. This law usually requires that the physician attending the case report to the proper authorities, either the Labor Commissioner or the Department of Health. A penalty of from \$10 to \$200 is affixed for failing to comply with the law. Now, two years ago such a bill was introduced in Rhode Island but after a hearing, was never reported. Of course Rhode Island ought to have such a law.

Most of you have heard of the disease known as the "bends" or caisson sickness, often associated with work under compressed air where proper precautions are not taken during the decompression process. The American Association for Labor Legislation has recently drafted a model bill on this subject and last year it was passed by the New Jersey legislature. This, or a similar enactment, is recommended by the Association for the state of Rhode Island. The Labor Legislation Association also intends to introduce in the Rhode Island legislature in January a sickness insurance bill which was drawn up by the Social Insurance Committee of this Association as a measure for use in the campaign for health conservation regarding sickness in industry, similar to the Safety First movement in accident preven-

tion. Thus can the state aid in the extension of the compensation principle to occupational diseases as well as to industrial accidents.

Of course, the citizens of Rhode Island are interested in workmen's compensation for employees of the Federal government. At the present time the Kern-McGillieuddy Bill, H. R. 15222, has been favorably reported by the Committee on Judiciary of the House of Representatives at Washington. This bill needs strong popular support and consequently letters and resolutions should be addressed to the Rhode Island representatives in Congress urging them to give their hearty support to this meritorious measure.

According to the December, 1913, Review of the American Association for Labor Legislation, "at least six branches of government are authorized or required to enforce labor legislation in this, the smallest state in the Union." This includes factory inspectors, the Bureau of Industrial Statistics, the Railroad Commission, the Inspector of Buildings, the school authorities and the police authorities and is sufficient evidence surely of the necessity for concentration and the coördination of control.

There is a great necessity here as elsewhere for constructive educational work in connection with the enforcement of sanitary and safety standards. This educational work should be carried on by the state, by the vocational training schools, by private philanthropic organizations, by labor unions and by employers.

There is needed here, as everywhere, the ability to make genuine value judgments in health matters. We spend money wisely for health when we attempt to control communicable diseases; we spend it foolishly when we attempt to make our health budget cover such non-health activities as plumbing inspection and nuisance abatement. From the point of view of health values industrial hygiene is of prime importance and we must realize that the health of the worker is essential if industrial evolution is not to be abortive.

There are many things of a more general, national or indeed international importance which must be taken into consideration especially by the creative, socially-minded individuals who are able to discern other than simply material values in industry and who are desirous of having palliation succeeded by prevention and cure in social reform. As a nation, we must realize in the first place the tremendous economic waste resulting from our national inability or disinclination to conserve the human resources in industry. Perhaps this will not be done until it is brought home to the industrial organizer that it actually pays to give at least as much attention to the human machine in industry as to the mechanical device. To quote a recent editorial in the *Journal of the American Medical Association*.

"Abbe (Zeiss Optical Works in Germany) kept a careful record for the years when

the plant was operating on a nine-hour day. When the working day was reduced to eight hours the record showed the men earned over 3% more than during the previous years, the output of the works was increased 3% and the power plant was able to shut down an hour earlier, thus affecting a very material saving in the fundamental expense. The record was for 233 men of 31 years and many different occupations on a piece-work basis were represented in the shop.

"Both employers and employees need to be convinced of the evident fact that the healthy man is the most efficient and the cheapest employee and that any reasonable expense to maintain him in health is a profitable investment."

It should be realized that our industrial system involves not only a waste of money and men but also of energy and enthusiasm. The men in Rhode Island who are making pearl buttons and who have nothing but pearl buttons to look forward to for the rest of their life are employed at a deadly hope-killing occupation and are quite naturally not going to put into that occupation any more interest and energy than is necessary. Is there a remedy for this? It is difficult to tell—certainly none has ever been tried on a large scale at least. One has been suggested, however, by an English writer and somewhat worked out by him in his discussion of the alternation of employments. This involves a periodic and progressive shifting from trade to trade at least in allied industries and requires of course intelligent governmental supervision, so necessary from every point of view, rather than the haphazard anarchistic industrial control or lack of control of today. This thinker believes, and certainly our own experience would seem to confirm it, that most men will work at a high pitch at a new thing, especially if they have in view a better thing to follow. In this way society would obtain both quantitatively and qualitatively a superior service from the individual, and as a result of the concentration would require less actual working time from the individual, thus allowing more time for the preliminary educational period, and because of increased earning capacity, a greater saving against the nonproductive old age.

Such a scheme would seem to be the only logical alternative to a further development of a more continuous specialization in industry, to a more fixed labor class and to the ultimate expression of the idea that man is first a worker and then a citizen as embodied in the pitiable program of "I. W. W. ism" in industry and syndicalism in politics.

It is inevitable that part of the labor of the world must always continue to be comparatively uncreative and unimaginative. However, the ultimate cessation of immigration, more immediate impending events in the industrial world,

point the way to the time, not far distant, when there will be no army of men always content to do "the dirty work" of the world. There is also a time coming when the state shall recognize the right of all individuals to work and grow socially and spiritually as well as materially—a thing scarcely possible for a man who is to be concerned with continuous drudgery or with one minute industrial process all his life. Is there a remedy for this condition? That also is hard to tell, but there is a plan, outlined by William James, that calls for an industrial state in which no class shall toil unceasingly but, through a conscript labor army, everyone, man and woman, will have the preliminary years for education and development, will spend his allotted time doing the foundation work of the world under the direction of the state on a basis of service to all, and not for the financial gain of the few. All the big necessities of life such as transportation, mining, food distribution and production, etc., must come under government supervision. For the individual to work his allotted time in this great industrial army will be to perform a great and recognized service to the state. Thus will drudgery be regulated and rendered innocuous. Here will be at last a legitimate field for militarism.

This may be exceedingly fantastic. It is at least, far in the future. It is an attempt to answer the many questions that are being asked of organized society with ever increasing intensity. Is industry to be reorganized by the intelligent, coöperative, sympathetic effort of a society with an awakened social consciousness, or is it to be seized and wrecked by the mad-dened and exploited? Is the spirit of gain to be replaced by the spirit of service or by the spirit of revenge? Is class distinction to grow and class war to come, or are the classes themselves to be socialized into extinction? Shall it be the constructive evolutionary path or the destructive revolutionary one? Shall poverty be enlightened and destitution made impossible? Pretty far from occupational disease? Yes and no. Far from the palliative treatment of this social defect but very near perhaps to the heart of the cure of the great social maladjustments of which preventable disease in industry is a manifestation.

MODIFICATION OF TECHNIC FOR HARE-LIP OPERATION.

BY W. E. LADD, M.D., BOSTON.

BELIEVING that perhaps there may be some surgeons besides myself who have had difficulties in performing hare-lip operations with uniformly gratifying results, I am offering a modification in the technic for their consideration.

The main principle of all hare-lip operations is the restoration of the normal line of the alveolar

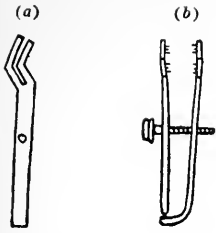


Fig. 1.

- (a) Shows front view of clamp with slit for knife.
(b) Side view showing teeth, etc.



Fig. 2.



Fig. 3.

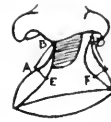


Fig. 4.



Fig. 5.

process as a preliminary procedure, followed by freshening of the edges of the fissure in the lip and sewing them together. In order to obtain a good looking lip with an inconspicuous scar it is absolutely essential to observe two rules: First the incision for freshening the edge of the fissure must be a clean cut made vertical to the plane of the lip; secondly, the incision on each side of the fissure must be of exactly the same length. Otherwise, accurate approximation is impossible and an unsightly irregular lip will result.

Some surgeons may be blessed with sufficiently accurate hand and eye to accomplish their result, "free hand," so to speak, but I believe there are many who will get better results by the use of instruments of precision.

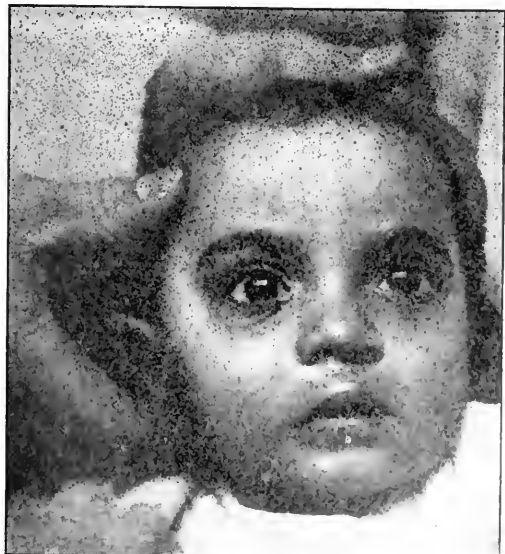
The ones which I have devised and found useful are two pairs of clamps (see Fig. 1), made on a suitable angle with fine teeth to prevent the skin or mucous membrane from slipping, and a slit for the introduction of a small knife to make the incision. The knife used is made double-

edged like a Catlin, only very small and thin (see Fig. 2). These instruments are used in conjunction with an ordinary small pair of sharp-pointed metal dividers. (See Fig. 3.)

The procedure of the operation is as follows: After the alveolar process has been restored in the usual manner, the desired height of the lip, minus the width of the vermillion border is determined with the dividers. This distance is then marked off on either side of the lip by pricking the lip with the sharp ends of the dividers at the points A and B and C and D (see Fig. 4) which are to form the lines of the incision. The lip and cheek are then freed from the alveolar process and superior maxilla on both sides until the fissure can be drawn together without tension. The clamps are then applied with the angles of the slits at the points A and C and the slits directed towards the points B and D. The knife is now introduced into the slit in the clamp and carried upward to the nose and downward through the border of the lip, making the incisions B A E and D C F (see Fig. 4). The



Hare lip before operation.



After operation.

clamps may now be removed and re-applied out towards the angle of the mouth to control hemorrhage.

The edges of the two incisions, which of necessity must be clean incisions of equal length and consequently fitting each other, can now be easily approximated, bringing the points B to D, A to C, and E to F (see Fig 5). This is done with one row of interrupted silk stitches, including all layers but the skin tied inside and another row of superficial approximation stitches of the same material, including the skin only, and tied outside.

This technic is applicable to all forms and varieties of single hare-lip, a fair example of which may be seen in the accompanying photographs before and after the operation.

Clinical Department.

PARTIAL TENOTOMIES BY THE TODD-HARMON METHOD.*

BY HOLBROOK LOWELL, M.D., BOSTON.

Assistant Surgeon, Massachusetts Charitable Eye and Ear Infirmary; Assistant Surgeon, Boston City Hospital.

NOTE: Since this paper was written the writer has become convinced that this operation was performed by Dr. F. C. Todd some six years previous to Dr. Harmon's article. Therefore the title has been changed, thus giving Dr. Todd credit for the precedence and Dr. Harmon credit for once more calling it to our minds in a most concise manner.

EVER since the writer began the practice of ophthalmology he has been particularly interested in heterophoric cases. He has tried blurring in esophoria, and prisms and exercises in exophoria. Tenotomies, tuckings, and advancements have produced fair and indifferent results. There has always been a feeling that it was rather a gamble as to just what result would be obtained in these cases. Some form of graduated tenotomy has always seemed the least haphazard and the more scientific procedure, but none of the numerous methods advocated have created enthusiasm enough for the writer to try them.

In the *Ophthalmoscope* of January, 1913, Dr. N. Bishop Harmon of London, England, published an article entitled "Lengthening a Rectus Tendon in Squint Operations." The writer was so much pleased with the simplicity and ease of control in the operation described that he has since, with gratifying results, performed the operation four times on patients with phorias, who had marked general and locally distressing symptoms. The liberty is taken of quoting below a portion of Dr. Harmon's article, to refresh the reader's memory.

*Read at the nineteenth annual meeting of the American Academy of Ophthalmology and Oto-Laryngology, October 20, 1914.

"The delicate methods of Stevens, Landolt, and Gromsdale require much patience, and then the result depends upon a frail suture. Verhoeff's partial plastic tenotomy is extraordinarily neat on paper, but is difficult to perform on the living subject, and I am not convinced that any real slacking of the tendon is secured. I evolved a method of three cuts which gave me all I wanted. It was so simple that it seemed that some one must have done it already, and in Casey A. Wood's new text-books of eye operations, I find nearly the same method figured, but if the author of the operation—Dr. Todd—will forgive me the criticism, it seems that he has just stopped short of doing what he sets out to do. The steps of the operation, and the effect, can be seen very well if it be practiced upon a piece of narrow adhesive strapping stretched between two fingers of an assistant. The tendon to be lengthened is exposed a short distance from the insertion. Supposing it to be an internal rectus, a small vertical buttonhole is cut parallel to the plica semilunaris and close to its edge. Tenon's capsule is cut and pushed back similarly, a squint-hook is passed beneath the tendon and slowly lifted, so as to draw the tendon into view, then two cuts are made in the same edge of the tendon, one on either side of the hook, as far as possible, so as to divide the tension at each cut up to the middle line of the tendon. Then the hook is pushed slightly to one side so the cut may be made from the opposite edge of the tendon, between the two cuts already made, and this cut is made from the edge right across the middle line of the tendon so as to sever two-thirds of its width. Immediately the third cut passes beyond the middle line, the tendon will be felt to give and it will yield distinctly as the cut is continued."

Discussions of this operation, and operations performed for the same purpose, elicited the opinion that the immediate result would be no more than ten degrees lessening of the phoria. In spite of the discouraging consensus of opinion, the operation was undertaken with some degree of confidence. In the following case the operation was done on the internal rectus of each eye.

CASE 1. Nov. 15, 1912, Mrs. H. W. F., myope, age 34, severe headaches for the past fifteen years. Examined repeatedly with and without a mydriatic. Complaints of pain through right eye, with no full relief from pain at any time. Appendix has been removed, turbinates operated upon, and an Alexander done. Has been in a sanitarium for nervousness several times. She is often awakened in the morning by severe pain in head. Fundi normal, pupillary reaction good, cornea clear, tension normal; small opacity in posterior surface of lenses. V.O.D. 20/30+, V.O.S. 20/70+. Esophoria seven degrees at twenty feet, tested with twelve degree prism base down, on the right eye. Esophoria between twelve and fifteen degrees at twelve inches. Homatropine ordered for examination.

Nov. 16, 1912. Ordered correcting glass with a three degree prism base out, in either eye.

Dec. 13, 1912. Above glass gave relief for four days, when same symptoms came back. Ordered:—
O. D.—.50 cyl. ax. 170 with 6 degree prism base out = 20/20.

O. S.—1. sph.—1.25 cyl. ax. 10 with 6 degree prism base out = 20/20.

Dec. 31, 1912. Last glasses do very well, though cannot read or sew, because she complains of seeing her nose. Esophoria seventeen degrees plus. Ordered +.75 added to her distance prescription with 6 degree prism base out, O.U.

Jan. 24, 1913. Old symptoms returned again. Partial tenotomy advised on left internal rectus. The operation was done according to the Todd-Harmon method, described above, the middle cut being carried a little farther than two-thirds the width of the muscle, as the greatest possible lengthening was desired. Immediately after the operation, prism base down before the right eye showed an esophoria of two degrees.

Jan. 29, 1913. There are no headaches at all. Esophoria three degrees at twenty feet. No movement with cover test. Ordered distance glasses prescription without prisms.

Feb. 12, 1913. Patient had severe headache again, complains of "pulling" of the right eye from inner manthus. Esophoria six degrees at twenty feet. Patient insisted that operation be done on right eye because of the "pull." Right eye was operated upon without incident, but the middle cut was not carried over two-thirds the width of the muscle, as only a moderate shortening was desired. The eyes were not tested immediately after this operation because of the patient's nervous condition.

Feb. 22, 1913. Conjunctival stitches were removed; orthophoria at twenty feet.

March 6, 1913. Cover test shows no movement. Feeling as though eye were "held in a vise" no longer present. Eyes white and quiet. Esophoria without glasses $1\frac{1}{2}$ degrees at twenty feet, with glasses $2\frac{1}{2}$ degrees.

Sept. 24, 1913. No movement with cover test, $2\frac{1}{2}$ degrees at twenty feet. Orthophoria, thirteen inches.

June 11, 1914. No movement with cover test, with and without glasses. Esophoria without glasses, at twenty feet, 2 to $2\frac{1}{2}$ degrees, with glasses 3 degrees. Patient says that she is free from previous headaches and other distressing symptoms.

CASE 2. July 24, 1912. Mrs. H. M. D., age 36, has had severe frontal headaches for past month; has been given glasses to rest eyes. V.O.D. 20/15—, V.O.S. 20/15—. Esophoria, twelve degree prism base down, twenty feet, fifteen degrees; at thirteen inches, nine degrees. Solution 1% homatropine ordered for examination. Ordered:—

O.U. +.37 sph. +.25 cyl. ax. 90 with 4 degree prism, base out.

Aug. 3, 1912. Complains of blurring with the new glasses but advised to continue using them.

Oct. 14, 1912. Esophoria has increased to twenty degrees at twenty feet. Ordered same prescription as above with 6 degree prism base out,

Nov. 7, 1912. Last glasses cause headache and general discomfort. It was decided to try a marked blurring glass with less prism. Ordered: +1.25 sph. +.25 cyl. ax. 90 with 4 degree prism base out O.U. Esophoria at twenty feet, twenty-six to twenty-eight degrees.

Nov. 19, 1912. Some trouble wearing glasses; advised to continue their use.

Jan. 28, 1913. Broke the last glasses. Esophoria twenty feet, twenty-seven to twenty-eight degrees. Marked movement with cover test. Operation advised.

Feb. 9, 1913. Operated on left eye, doing partial tenotomy. Middle cut was made as long as possible. There was so much pain resulting from stitching up the conjunctiva that the immediate result of the operation could not be tested.

Feb. 11, 1913. Patient had pain for about four hours after operation, but slept well. No headache.

Feb. 14, 1913. Some discomfort because of stitches. Esophoria twelve degrees, twenty feet. To wear old glasses.

Nov. 6, 1913. Esophoria fifteen degrees twenty feet.

June 11, 1914. Esophoria at twenty feet, with twelve degree prism base down, ten degrees; with Maddox rod fourteen degrees. Marked movement, cover test. Patient says she will have her other eye operated on next fall.

CASE 3. Apr. 7, 1913. Mr. W. F., age 62, marked diplopia. Cover test shows left eye turning up. Had considerable nausea, and much pain in back of his head, running down left side of his neck. V.O.D. 20/30, V.O.S. 20/20—. With +1. O.U. 20/15. Left hypertropia fifteen degrees. Operation advised.

Apr. 8, 1913. Partial tenotomy done according to the Todd-Harmon method on superior rectus, left eye. Orthophoria immediately after operation.

Apr. 21, 1913. Patient reports gastric symptoms have gone, and no longer diplopia, except when he looks very high up and to the right. Eight degrees left hyperphoria.

June 12, 1914. Four degrees left hyperphoria. Is not troubled by double vision, except when he looks up and to the right. Still some slight pain at times in left side of his neck. He has been so comfortable that it was necessary to write and ask him to report.

In summing up the foregoing results there are certain factors which should be taken into consideration. Patients with such marked phorias are of a highly strung, neurotic temperament, and it is a question whether this general condition is due to the phoria or vice versa. It is doubtful if it is ever possible to bring out all the latent phoria. However, the effort was made, in the first two cases, to bring out all the esophoria present.

In the first case the immediate post-operative result showed a correction of fully fifteen degrees. Eleven days after the first operation there were six degrees of esophoria and patient still had severe headaches. A few days after the second operation there were two and a half degrees of esophoria at twenty feet, that is, three and a half of the six remaining degrees had been corrected. In this second operation the middle cut was carried very slightly beyond the centre of the muscle. Fifteen months have elapsed since the last operation and three degrees of esophoria are present, the patient has freedom from the previous distressing symptoms, in spite of the fact that there has been much illness in the rest of her family.

In the second case the post-operative result showed a correction of fifteen degrees of esophoria, leaving twelve degrees uncorrected. The patient reports improvement in general condition and less nervousness, and wishes the other eye operated upon in the fall. There are still twelve to fourteen degrees of esophoria uncorrected.

In Case 3, the immediate result after operation was orthophoria. Fourteen months have elapsed since the operation, there are four degrees of hyperphoria present, showing an apparently permanent correction of eleven degrees. The patient has been comparatively comfortable.

Since this report was begun the writer has had occasion to operate on several strabismus cases. In two instances the external rectus was tucked, and the internal rectus was partially tenotomized according to Harmon's method. The procedure proved quite successful and gave a sense of security very foreign to that usually felt after a full tenotomy operation.

THE TREATMENT OF PNEUMONIA IN CHILDREN. REPORT OF 104 CONSECUTIVE CASES.

BY HAROLD W. DANA, M.D., BOSTON,

Assistant Physician at the Boston Dispensary; Second Assistant Visiting Physician at the Boston City Hospital.

THIS series of cases was treated by me during three years' service in Roxbury as district physician of the Boston Dispensary. There were 44 cases of lobar pneumonia and 60 cases of broncho pneumonia. Since I have not treated the two conditions as such differently from each other, the figures as to age periods include both types of the disease indiscriminately.

	NUMBER OF CASES.
Under one year.....	25
One year.....	21
Two years.....	15
Three years.....	12
Four to five years.....	14
Five to eight years.....	12
Eight to twelve years.....	5

Of the whole number treated, two cases died. One of these in addition to having pertussis as a complication, had taken almost no food in the week previous to beginning treatment. The other case, a feeble baby six weeks old, was not seen early in the disease. There was recovery in the other 102 cases. Many of these cases had pertussis or measles as complications to the pneumonia and in many cases treatment was not sought for until several days after the onset of the infection.

Home conditions were unfavorable in all of my cases in this series. The patients lived in a

poor neighborhood, in tenement houses; often the parents were very ignorant and many of them were opposed to modern theories of ventilation. The fresh air cure is difficult to give anyway where a family of from four to eight people live in two or three rooms. There was little to do with, and of course since the nurses of the District Nursing Association could at the utmost make but two daily visits, my treatment was based on this amount of nursing. While, naturally, constant nursing care would be more desirable, certainly no nursing could have been more efficient, painstaking and enthusiastic than that which these patients in Roxbury received. In most cases we obtained the loyal coöperation of the mother and I feel certain that the care given by the nurse and by the mothers of the children produced the favorable results obtained.

The routine was as follows, in order of their importance:—

1. Fresh air constantly. Often, in winter, a child can be kept better covered and warmer if it be bundled fairly tightly into a baby carriage or a clothes basket, when it is to be put near an open window, than if kept in a bed.

2. Food. This is extremely important. If one is willing to take the necessary time and trouble, small amounts of liquids, or semi-solid food can be given to any child, and if repeated often, considerable nourishment can be given. Often the fact that a sick child does not wish food is considered by the mother as a sufficient reason for not giving the child any food.

3. Saline enemata. Long, slow, hot normal saline irrigations of the bowels once or twice a day are useful as a means of stimulation, to give water to the body, to reduce toxemia, and also for cleansing purposes. If necessary, calomel in divided doses was used for distention or constipation.

4. Cold applications to the chest. This was accomplished by wringing cloths out of cold water, applying them to the skin, covered over with newspaper to protect the clothes. These applications should be renewed when they become warm.

5. Bathing. These children received a tepid sponge bath, preferably followed by an alcohol rub, twice daily if the temperature reached 102.0° F.

6. Brandy. When the temperature is high or long continued I am personally in favor of large doses of brandy, perhaps 20 to 50 drops every two hours for a child one to three years old. The brandy is better not given with food as it may make the child vomit, or may make the food objectionable to the patient.

7. In one case in which I suspected a streptococcus septicemia, as a sequel to the pneumonia, antistreptococcus serum was given twice, apparently with brilliant results.

8. Drugs. As a routine all of these patients were given ammonium chloride and syrup of ipecac, using the fluid extract of glycyrrhiza as a

vehicle. For a child under a year I use a quarter to a half grain of ammonium chloride and a quarter to a half drop of the ipecac each two hours. For all children over a year I give a drop of ipecac for each year of the child's age each two hours, and a grain of ammonium chloride each two hours for a child from one year to twelve years old.

If the child is very sick, it is given tincture of belladonna, a quarter to a half drop up to eighteen months of age, and one to one and a half drops for older children each two hours.

A method I have found convenient for prescribing these drugs, is to add together the number of drops or grains of each ingredient desired in one dose, and then to order as many drachms of each to be put into the mixture as there were drops in each dose. For instance, for an eighteen months' old baby if I wish to give a grain of ammonium chloride, a drop of belladonna, a drop and a half of ipecac, using five or six drops of the vehicle, I write for the following mixture:

R Ammonii chloridi	3i	(=gr. 1)
Syrupi ipecacuanhae	3iss	(=Gtt iss)
Tincturae belladonnae	3i	(=Gtt i)
Extracti glyceirrhizae fluidi	3vss	(=Gtt vss)
(Total =8 drops)		

M Sig. Give eight drops in a spoonful of boiled water every two hours.

As sheet anchors in case of need I use, first, tincture of digitalis, based on a minim and a half dose for each year of age each four hours when the heart action is weak and rapid; finally, as a last standby, I make a solution of strychnine sulphate and give large doses, one four-hundredth to one one-hundredth of a grain every four hours, stopping this drug after a day or so, or as soon as I can, to hold it in reserve for further need.

Medical Progress.

SEVENTH REPORT OF PROGRESS IN ORTHOPAEDIC SURGERY.*

By ROBERT B. OSGOOD, M.D., ROBERT SOUTTER, M.D.,
HERMANN BUCHOLZ, M.D., HARRY C. LOW, M.D.,
MURRAY S. DANFORTH, M.D.,
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TUBERCULOSIS.

TUBERCULOUS rheumatism still continues to be discussed and the French seem to have won a German convert. Nohl¹ believes that a chronic

* This report is based on a review of 260 articles, etc., selected from about 500 titles having to do with Orthopaedic Surgery appearing in medical literature between December, 1913, and March, 1914. References are given to only such articles as have been chosen for report and comment.

affection of the joints with a dragging course, a tendency to ankylosis, and a lack of response to the salicylates, should lead one to suspect tuberculosis as the cause. If, in addition, the general health is more affected than the condition of the joints seems to warrant, Nohl believes that we are safer in treating the case as one of tuberculosis.

Raw² reports several cases in which there was a polyarticular "tuberculous arthritis" in patients having other severe tuberculous affections, either glandular or general. On the other hand, there was no evidence of arthritis in 6000 cases of pulmonary disease.

[Ed. Note.—The evidence which Raw presents does not go far to prove the frequent occurrence of the rather mild "rhumatisme tuberculeux" which Poncet has described.]

Menard³ states his belief that the only efficient method of treating Pott's disease, both as regards cure and the prevention of deformity, is by recumbency. Menard's experience is perhaps as large as that of any orthopaedic surgeon, and he is not unfamiliar with the work of other men.

Packard,⁴ after many years of work, has reached the same conclusion.

[Ed. Note.—We believe that greater effort should be made, even among the poorer classes, to carry this out in all severe cases. We still consider too early weight bearing unwise, even if ankylosing operations have been successfully performed, though they may well shorten the period of recumbency.]

We continue to see favorable reports of the treatment of osseous and joint tuberculosis by means of the Roentgen ray. Biteroff⁵ has observed some thirty cases treated in Wilms' clinic in Heidelberg between October, 1911, and April, 1913. In twelve cases a later examination was made and in nine others reliable reports were received. Among the twenty-one cases there were four which he excluded because of tuberculous disease elsewhere, but among the seventeen remaining, twelve showed definite cure, two a probable cure, and three considerable improvement. The sinuses closed in all cases within a few months. He recommends the removal surgically of as much of the diseased tissue as possible and insists upon general treatment being carried on at the same time.

Seaduto⁶ has observed five cases treated by this method, i.e. by post-operative Roentgen ray exposures every two weeks for many months. He considers the combination a great progress in the treatment of tuberculosis of the joints.

[Ed. Note.—The benefit of Roentgen ray therapy in tuberculosis of the joints would be more conclusively proven by these reports if general and surgical treatment had not gone hand in hand with the Roentgen ray therapy. We are inclined to believe, however, from personal experience that in certain cases, especially those with sinuses and mild secondary infection, this method should be tried with some measure of hopefulness. We must never forget, however,

the danger from x-ray burns or its effects upon the deeper glandular structures.]

Leuba,⁷ evidently tremendously impressed with the cures in Rollier's clinic at Leysin of cases of tuberculous disease of the foot, many of them very advanced, declares that it is criminal to operate upon such cases. Many of these cases had been advised to have amputation performed and the photographs would seem to justify this advice according to the experience of the past.

[Ed. Note.—While the paper adds other evidence of the great value of heliotherapy as carried out at Leysin, there will remain many cases to be treated, which can neither go to Leysin nor remain inactive for the long period necessary to carry out the treatment by heliotherapy in any place. The results of tuberculosis of the foot and ankle as studied by Rogers⁸ would seem to indicate that surgery under certain conditions is still the best method of treatment.]

Mau⁹ has found in the blood of a large number of tuberculous patients and also of persons in health, acid-fast bacilli. He has not conclusively proved that these are tubercle bacilli, but believes them to be. He makes a plea for the consideration of tuberculosis in all its manifestations as a general disease and urges the continuation of general treatment for many years after the local lesion is apparently healed.

Küchenhoff¹⁰ points out the fact that spinal anomalies may well prove a predisposing cause of pulmonary tuberculosis, especially to apical lesions, because in the "round shouldered" position with the curve of the upper spine forward, the apical space is narrowed.

[Ed. Note.—This observation is in keeping with statistics which show the common development of tuberculosis in persons whose chest expansion is slight and also in keeping with the fact that faulty posture and round shoulders are seen to be almost universal among those who make up the personnel of a tuberculosis clinic.]

Interesting inoculation tests have been made by Sforza and Cosco.¹¹ They have attempted to determine the extent to which muscle and bone marrow harbor the tubercle bacilli. They removed portions of muscle and bone marrow from tuberculous cadavers and injected them into guinea-pigs. In forty experiments they found practically no signs of infection when the pigs were inoculated with muscle tissue, but nearly all which had been inoculated with bone marrow died.

ARTHRITIS.

While acute articular rheumatism is considered a medical rather than an orthopaedic disease, the increasing tendency to seek at least the consultation of the orthopaedic surgeons in all chronic and some acute joint diseases makes any investigation as to the etiology of acute poly-arthritis of obvious importance in any review on progress such as this. As is well known, Poynton and Paine many years ago believed they had

isolated a specific streptococcus from joints of acute articular rheumatism. Phillip, Cole, Beattie, and others failed to cultivate any streptococcus, and Loeb was successful in only a few cases.

Rosenow's¹² experiments with his careful technique and detailed reports are of extraordinary interest. He seems to have isolated three types of organism from the joints of two cases, each of which types by special cultural methods may be converted into either one of the other two. Two of these, a streptococcus and a micrococcus, produced arthritis and pericarditis, but not myositis in rabbits and monkeys. They are all of low virulence and their affinity for joints and endocardium diminishes in cultivation. Grown with other bacteria and under low oxygen pressure, such as exists in the tonsils, sinuses, etc., they may acquire new features.

[Ed. Note.—Rosenow appears to be a veritable prestidigitateur and his successful transmutations are most astonishing. The confirmation of these observations will be of great importance. and in the meantime, as he suggests, we may well retain the term "streptococcus rheumaticus" until we can more carefully differentiate these varieties. The possible bearing of these experiments on vexed questions of the bacteriology of the different chronic non tubercular arthritides is evident.]

Barker¹³, after an exhaustive study of the literature, finds that "the differentiation of the diseases included under the term chronic arthritis" is not so obscure a problem as he had expected. He recognizes along with others the almost impossibility, in the light of present meagre knowledge, of making a satisfactory etiological classification. There are too many missing links in the development of these diseases. Moreover the same late clinical picture may be present as the result of two very different original causes. An anatomical classification offers more hope and is more satisfactory than such terms as "static arthropathy" (Preiser) or "chronic irritative arthritis" (Hoffa and Wollenberg), but again our accurate anatomical and pathological knowledge is not at present accurate enough to make possible a satisfactory and inclusive classification on this basis. Barker recognizes the vitality and accuracy of certain descriptive terms and believes that much of the confusion which still exists is due to the attempt to make clinical and anatomical and etiological classifications coincide. As a working basis he suggests four divisions: I. Gout. II. Neuro Arthropathies. III. Primary Hypertrophic. IV. Secondary Chronic, including under this last heading Infectious Arthritis, as Luetic, Tuberculous, Gonorrhoeic, Rheumatic (if it exists).

[Ed. Note.—It may not be amiss for the Editors to synonymize some of the various English and American attempts at classification under these headings.

I. *Gout*. This seems to retain its specificity in most classifications.

II. *Neuro Arthropathies*. Evidently here are included the tabetic joints, those occurring in syringomyelia, and possibly some of the types of atrophic arthritis (so-called by Goldthwait), which Osler and Painter and others have supposed to be possibly connected with a lesion of the central nervous system.

III. *Primary Hypertrophic*. This would obviously include the Hypertrophic type of Goldthwait and the Degenerative or Non-ankylosing type of Nicholas and Richardson, the Chronic rheumatoid type of Bannatyne, and the Osteoarthritic type of Llewellyn Jones. When speaking of Heberden's nodes, which belong under this heading, many writers use the term "Arthritis deformans." Strictly speaking this should be used as a general term for any deforming arthritis rather than as indicating any one type.

IV. *Secondary Chronic*. In this group should be included all those chronic joint conditions following special known etiologic agents, the great mass of which are either frankly infectious or at least toxic from some focus away from the joints. Here we should place probably some of the Atrophic and all of the Infectious types of Goldthwait, and the Acute and Subacute rheumatoid types of the English writers, and the Proliferative or Ankylosing types of Nichols and Richardson, although these authors believe that the causative agent is not an infection.

We have not mentioned in this attempt to synonymize the careful pathologic classification of Nathan, for while it is most helpful and valuable, it is less likely to be applicable clinically by the average practitioner. What we need at present more than anything else is the general recognition of such rudimentary facts as the very existence of specific types of chronic non-tuberculous joint diseases, now far too widely classed as chronic rheumatism and treated by irrational medication and meagre success. When the profession at large comes to accept these facts, evident to all historical and clinical and pathological investigators, and learns to recognize the various types, calling them by what names they will, then we may expect less discouragement of therapy and a more rapid advance of knowledge which will some day lead to more accurate and generally acceptable classifications.]

The importance and possibility of this differential diagnosis of these types has been emphasized by Wollenberg¹⁴ in a recent article, in which by pathological specimens and radiographs he shows the findings to be quite characteristic of gout (Type I, Barker), arthritis deformans (Type III, Barker), progressive polyarthritis and gonorrheal arthritis (Type IV, Barker).

In an article entitled, "General Pathological Considerations in Joint Affections," Delrez¹⁵ has made some interesting observations regarding the joint fluid. If the cytological examination of this shows the polynuclear count low it argues in favor of a tubercular infection. Only the

presence of bacteria themselves, and not the cell count, would determine whether the fluid were sterile or infected, since this cell count varies in both types at different times, now showing a preponderance of the polynuclear forms and now of lymphocytes. If the fluid withdrawn does not coagulate in thirty minutes it suggests complete recovery. When spontaneous coagulation occurs outside the joint this usually takes place in from ten to thirty minutes. Delrez has found, as have other observers, that the synovial fluid may be sterile but bacteria be found in the membrane. Analogous conditions are found in the pleural, pericardial, and peritoneal cavities. He states that Volkmann and König have shown that tuberculous arthritis is frequently caused by a neighboring bony focus and that J. Koch was able by injecting a streptococcus in the vein of a dog to produce an arthritis. The fluid withdrawn was sterile, but the streptococcus was found in the marrow, the epiphysis, and the periosteum. Delrez believes, however, that there are also articular infections primary in the synovial membrane, and quotes the experiments of Lannelongue and Archard on rabbits, proving absolutely in his opinion this independent origin of certain infections in the joint synovia with the bone uninvolved.

Pemberton¹⁶, using the term Rheumatoid arthritis in a somewhat indefinite and inclusive sense, has been studying its metabolism and attempting to discover methods of diet which will be preventive and successful in the treatment of chronic polyarthritis. We should say that most of his cases would come under the fourth type of Barker's classification above, that is, the Secondary Chronic Type, and would not include the third, or Primary Hypertrophic class. Pemberton points out that even the removal of the original cause may not be sufficient to put the disturbed metabolism in correct balance. He believes that the old ideas of faulty elimination of the bowels and kidneys and of intestinal putrefaction must not be too closely followed. His treatment is based on the regulation of the diet so that it shall first come within the limits of the disturbed faulty metabolism. That is, he begins frequently with a diet of low calorie value and with quite as much attention to the avoidance of too great quantities of carbohydrate food as of proteids. The diet is then increased very gradually. He has found this successful in markedly improving the condition in many reported cases.

[Ed. Note.—His articles are well worth careful study, not only because of the value of his research work, but because the emphasis is rightly laid upon careful individual attention to each case in the matter of diet. Little may be expected from any other type or dietetic treatment.]

It may possibly be found as a result of the most suggestive studies of Traves¹⁷ and Dreike¹⁸, the later work of Bean¹⁹ on the basis of the germ layers, and the still more recent articles of

Bryant²⁰ on personal records of over 200 autopsies, upon which we expect to comment more fully in a later Report of Progress, that we shall be able to lay down certain broad principles of diet, based on an ability to recognize certain broad general types of individuals and based also on the possible discovery that the different types are susceptible to distinct types of metabolic and joint disturbance. Thus many observers have recognized already the carnivorous and herbivorous types and the difficult intermediate class of human beings, the body form, the lengths of the different intestinal segments, etc., all conforming to a most constant degree. Already we are beginning to find clinically that one type does well on a largely meat diet, and badly on a largely vegetable, while another improves on vegetables and grows worse on meat. We would call the attention of those interested in this most suggestive, and we believe most helpful work, to Bryant's²¹ Remarks and Bibliography on Stasis and Human Efficiency in the May, 1914, International Abstract of Surgery.]

Menzer²² believes that all treatment of non-tuberculous joint diseases should proceed on the assumption that somewhere in the body is a focus of chronic infection. He considers that the commonest location of these central infections is in the upper air passages, the tonsils, the nasal sinuses, the bronchial lymph nodes, or the ear.

Ibrahim²³ is convinced that Still's disease is identical with chronic infectious polyarthritides of childhood and that the prognosis in all cases is by no means bad.

[Ed. Note.—We report these articles not as representing new conceptions but as adding the weight of further clinical observations to the infectious or toxic theory of much chronic non tuberculous joint disease. The acceptance of this theory will lead to the realization that as Menzer says, salicylic medication is not the proper treatment. It may relieve pain, but it does not combat the central primary cause, and interferes with the natural production of antibodies and the development of natural immunity.]

Tommasi²⁴ interested in a statement of Prof. Pellizzari that gonorrheal arthritis occurred only in tuberculous subjects, studied all the cases of gonorrheal arthritis admitted to the clinic of the R. Istituto di Studi Superiori of Florence from November, 1911, to the date of his paper, comprising twelve cases. A positive diagnosis of tuberculosis was made when the von Pirquet reaction was positive. A positive diagnosis of gonorrheal arthritis was made when there was in addition to a characteristic arthritis a urethritis with a discharge containing gonococci. In every one of his twelve cases there was a positive von Pirquet reaction and nearly all were of a "build" suggesting susceptibility to tuberculosis. Some of the cases had evidently had previous tubercular infections. Tommasi believes that in a person infected with tuberculosis the tissues may be predisposed to gonorrheal in-

fection, the protective reaction being weak to this special infection. He believes that the very fact that a person has a gonorrheal arthritis should lead one to suspect a latent tuberculosis and that treatment should be planned with this in mind.

Solis-Cohen²⁵ has called attention to a very obscure but, we believe, sometimes recognizable class of joint symptoms which he designates as angioneural arthroses (periarthroses, pararthroses). The etiology is obscure, and attacks come on and recovery occurs often unexpectedly and inexplicably. Practically nothing is known of the pathology, and the diagnosis may perhaps be said to be made largely by exclusion. The type of individual is usually neurotic and the exacerbations seem now to have one cause or set of causes and now another. He does not attempt to discuss the possible relation of any of the glands of internal secretion, but believes that supervision and regulation of the manner of living is of most importance.

Over treatment is, in the opinion of the editors, the greatest danger, considering our great lack of knowledge concerning both cause and effect.

PARALYSIS.

Cerebral-Spastic. Stoffel's²⁶ article on the treatment of spastic paralysis is an important one and we are beginning to receive reports, for the most part favorable, concerning the results of the operative treatment which he advises in certain cases. He believes, however, that early cases can be much benefited by non-operative treatment. He emphasizes the fact that there exists no complete paralysis of muscles in spastic paraplegia. The peripheral neuron being intact, the muscles are capable of contraction under electrical stimulation. He considers that there are two stages to the disease, first a more or less complete paresis and a diminution in muscle tone; second, a state of hypertonicity in those muscles whose origins or insertions are brought nearer together by the positions maintained in bed, and a hypotonicity in the over-stretched groups. He believes that if contractures are not allowed to occur, the primary stage of paresis is curable and that the muscles can be re-educated into good function. In the cases such as are commonly seen in which contractures have already occurred, Stoffel believes that decreasing the energy of the spastic muscles and increasing that of the antagonist muscles is the principle of treatment to be followed. He considers that this can most perfectly be accomplished by an operation which he describes. With a knowledge of the internal anatomy of the nerve bundles within the sheath, he resects or divides some of the motor fibres going to the spastic muscles. By massage, exercises, and electricity he then strives to strengthen the weaker antagonists. He resorts in addition to tendon lengthening only when contracture is still present under the anaesthetic.

Hohmann²⁷ reports good results (number of cases not given) from this operation, but emphasizes the importance of long continued after treatment, and has noted the appearance of neuralgic pains in two of his cases one and two weeks respectively after the operation. He believes that the operation is indicated in cases of Little's disease, infantile cerebral hemiplegia, and spastic contractures in the hemiplegias of adults, but not indicated in those cases having choroeic movements, hydrocephalus, etc.

Bülow-Hansen²⁸ in Christiania reports his favorable experience with the operation in 22 cases, nine of Little's disease, eleven of spastic hemiplegia, one of spastic hemiplegia in an adult, and one a spastic torticollis.

Bundschuh²⁹ from the surgical clinic in Freiburg describes two cases of spastic equino varus and one of marked adductor contracture who were much benefited by the operation.

Kölliker³⁰ in Leipzig, on the other hand, believes from his experience that the operation is not as suitable as tenotomies in cases of Little's disease, but is useful in pronation and flexion spasms of the hand in cerebral hemiplegia.

A type of spastic paralysis occurring in certain cases of inherited syphilis, described by Marfan³¹ should be mentioned, since it may well be confused with some of the other spastic paralyses. With treatment it is capable of cure, alleviation, or at least arrest, but without treatment is definitely progressive. Marfan has observed six cases, the paraplegia beginning between the ages of five and twelve. The gait at first is only a slight limp of the spastic type and may be more pronounced on one side. It is difficult for the child to flex the joints in walking, though the spastic rigidity largely disappears at first in sitting or reclining. The tendon reflexes are much exaggerated and Babinski's sign is present. In Marfan's cases the Wassermann was positive in several and in three there were signs of an interstitial keratitis. Salvarsan seemed effective in arresting the process in his first case (observed for over ten years) though mercury and iodide had failed. If treatment is begun early he believes the progress may be arrested and possibly a complete cure accomplished.

Poliomyelitis. Kling and Petterson³² add confirmatory evidence to the experiments carried out at the Rockefeller Institute under the direction of Dr. Simon Flexner, with regard to finding of the virus of poliomyelitis in the washings from the nose and throat of healthy persons in the environment of a case of poliomyelitis. It would seem that whether or not the disease is transmissible by insect or animal carriers, the human naso-pharyngeal secretions should be most thoroughly destroyed in all cases of the disease, and perhaps as well the secretions of those in close contact with the sick.

Soutter³³ has devised an operation for the correction of the obstinate flexion contractures of the hip frequently observed in neglected cases of poliomyelitis. Its merits are its thorough-

ness, its simplicity, and its freedom from hemorrhage. A 6-8 cm. longitudinal incision downward from about 5 cm. posterior to the anterior superior spine is carried to the deep fascia, which is then incised in a transverse direction. With an osteotome or a sharp periosteal elevator the insertions of the tendons to the anterior superior spine and extending downwards along the pubic bone are scraped off and pushed downward with fingers and gauze. The bleeding is slight and the correction of the deformity easy.

[Ed. Note.—The editors have had most satisfactory results from this operation.]

Under the title of "A New Treatment of Poliomyelitis," Moulton³⁴ maintains that many cases of poliomyelitis may be prevented from permanent paralysis by energetic manipulative treatment of the spine. Quoting Osler he says that the paralysis is due not so much to the damage to ganglion cells themselves as to the effect of the inflammatory changes in the surrounding tissues. He believes that regeneration of the axis cylinder will take place if the nourishment can be restored. The inflammatory process has caused adhesions of fibrinous tissue which contract and constrict. By stretchings and swingings with the body suspended by the head or a waist belt he strives to break up these adhesions without injuring the nerve cells, bringing about at the same time an increased blood supply which aids absorption and stimulates vaso motor function.

[Ed. Note.—Moulton's reports of cases are vague, and while the possibilities of his treatment need not be denied, it is evidently unscientific and certainly in the early cases, we believe, dangerous. In our experience massage begun before the peripheral neuritis had subsided has aggravated the symptoms. With certain safeguards and with judgment its trial in cases beyond the acute stage would not seem likely to do harm, but would seem to differ little from the methods now employed by those well trained in physical therapy.]

(Concluded next week.)

Reports of Societies.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY.

WEDNESDAY, NOVEMBER 11, 1914, AT 8.30 P. M.

The President, DR. WILLIAM DUFFIELD ROBINSON, in the chair.

DR. JOHN J. GILBRIDE reported a case of acute appendicitis with abscess formation in which the infecting organism was the colon bacillus, and in which the patient had a severe glycosuria. Recovery followed operation and drainage.

SYMPOSIUM: THE EYE, THE EAR, THE FAMILY DOCTOR.

DR. GEORGE E. DESCHWEINITZ read a paper entitled "Concerning the Commoner Diseases and Injuries of the Eye and Their Treatment."

DR. SAMUEL D. RISLEY: Under the light of modern research we have discovered that things apparently simple are complex. In no form of disease is this probably so much observed as in conjunctivitis. By the educated eye and with laboratory methods many essential differences are discovered not recognized by casual observation. We all must have been impressed with Dr. deSchweinitz's statement that to be an ophthalmic surgeon one must first of all be an educated doctor. With increased experience I am more impressed with the truth of what has been said tonight, that if tubercular infection of the eye does not stand first as an etiological factor in infections of the uveal tract and of the cornea it is very close to first in etiological importance. Again and again cases of headache have upon close study been traced to this infection.

DR. WILLIAM S. NEWCOMET: Reports come to us from outside the city of cataracts being cured by radium, but I cannot support any such form of treatment. We occasionally get good results with radium in the treatment of small epithelioma around the lids. In cases of true rodent ulcer, however, I believe we gain nothing, unless we cut wide of the mark and bring the tissues together by a plastic operation. In reported cases of cure there is failure to discriminate between the two conditions.

SOME CONSIDERATIONS OF THE NEWSPAPER ELEMENT IN PUBLIC MEDICAL INSTRUCTION.

DR. HIRAM WOODS, Baltimore: From the attempt of the medical profession in Baltimore to make use of the public press certain lessons have been gathered. Three phases of our relations with the daily press are: (1) Advertisement of patent medicines, various medical appliances, electrical treatment, opticians' cure of remote symptoms by glasses, etc.; (2) Descriptions of remarkable, or supposedly remarkable operations, details of illness of prominent persons, etc.; (3) Legitimate educational purposes. The first of these three, advertisement, has an influence upon the value of an educational article. Certain classes of people receive more lasting impressions from the claims of some medicine published on the first or last page than from a carefully prepared article stowed away in small type on the editorial sheet. Upon the second count we have found that men whose cases did not, and others whose cases did get into the papers, disapproved of the publication of unauthorized accounts of an illness or surgical operation. A committee was appointed from our profession to confer with the newspaper representatives. The report of our committee, however, failed of acceptance with two out of three newspapers mainly because editors did not wish to curtail their plans for running down a "story" in their own way. In our relation with the press, no one will question the value of the newspaper as a means of reaching the public, there can be no doubt of public interest in medical matters; and, I think we may also say that if we have advanced in preventive medicine, it is our duty to instruct the public in means of prevention. To make such instruction helpful, however, one must put himself in the place of the ignorant and the more or less sensation-loving portion of the public, those

most in need of our instruction. For this work the help of the experienced reporter should be welcomed.

One point especially insisted upon by our Baltimore newspaper friends is that medical articles should be signed by a man known to understand his subject. Success in newspaper instruction must depend upon professional and journalistic coöperation. Possibly the solution lies in the medical society's assuming responsibility for the article, while giving the name of the author. Newspaper public instruction has more to it than furnishing anonymous articles and the background difficulties are the hardest to solve.

DR. A. B. HIRSH: That there should be united action on the part of the medical profession and of representative men of the press certainly appeals to those who have studied the efforts of our own County Medical Society's committees in what has been to us during the past year a relatively new field. Dr. Woods has our assurance that his suggestions have indeed fallen upon fertile ground.

THE RELATION OF THE TONSIL, ADENOID AND HEARING TO DEVELOPMENT IN CHILDREN.

DR. D. BRADEN KYLE: Tonsillar and adenoid tissues are physiological structures and their relation, as well as that of hearing, to the mental and physical development in children is of extreme importance. It is therefore apparent that the mechanical interferences with phonation, such as imbedded or enlarged tonsil, or the obstructive adenoid, should be corrected early in life before habits are fixed. Extreme care should be taken in correcting these defects that the muscular structure of the soft palate and pharyngeal pillars are in no way injured and thereby prevent the formation of scar tissue, which in turn would involve the mechanism of phonation later in life. It is extremely important for the parent, the physician and the teacher to take into consideration these mechanical defects, and watch the process of the child through the formative period of development. I do not wish to be understood as believing that all tonsils cause adverse conditions or that all tonsils should be removed, but I do wish to emphasize my conviction that adenoids and tonsils are in many instances the great enemies of perfect development of hearing and of speech. There are few children who suffer from impaired hearing who do not have this condition. There is no more fallacious and dangerous statement in the English language when applied to the ear, than that advice of letting the child alone to outgrow the cause, for we positively know that sooner or later it will be a menace, not only to his hearing but to his speech and general health. While the child's mentality may be normal more effort is required to attain development in the presence of obstructive adenoid structure than in its absence. In early childhood any obstruction to nasal breathing will affect the facial development and contour. This will affect the acoustics of the mouth and interfere with phonation and enunciation and alter the voice. The tonsil that is submerged is the one that nearly always is to blame for the infective processes in its region and in the neck and which proceed from the neck to the general system.

By careful attention to these conditions in childhood with removal of the causes the number of handicapped children will be materially lessened.

DISCUSSION.

DR. B. ALEXANDER RANDALL: I would express my almost complete agreement with all that Dr. Kyle

has said. I will go a step further and state my conviction that obstructed nasal breathing is more often a cause of adenoid hypertrophy than a consequence. We must have a free nose if we are to have these conditions remain anywhere near the normal. Unilateral deafness is a very serious handicap to those who may have perfect hearing in the other ear. If all sounds are taken in from one ear there is not only a delay in comprehension, but an amount of actual confusion very little appreciated. Upon the anatomical side I feel strongly about the essential nature of a free nose. There are many instances in which the high vaulted palate with the narrow nasal chambers are in part hereditary. Children should be taught early to keep the nose free. By hot gargling much can be accomplished by a method so ridiculously simple that many will not use it. By keeping the parts in good working order in early life many of these disadvantages can be forestalled.

DR. FRANCIS R. PACKARD: In a discussion of the pathologic conditions of tonsils and adenoid vegetations in the nasopharynx as they bear on the development of the child, there should be a distinction drawn between the two conditions. In respect to the influence of adenoid vegetations, I think their presence is invariably harmful, especially (1) by their interference with respiration; (2) by the ear conditions, either suppurative or nonsuppurative to which they give rise; (3) as sources of infection by the presence in the adenoid of tubercle bacilli or other pathologic microorganisms. Meyer's classic report which appeared in English in the Transactions of the Medico-Chirurgical Society of London for 1868, dwelt especially on the ear troubles arising from them, nearly two-thirds of the 102 cases he had observed having aural disease as a result of the presence of vegetations. The tonsils although sometimes an etiological factor in ear troubles and quite often a source of respiratory disorders, are now chiefly regarded as productive of harm by acting as portals of infection or autotoxemia, especially in what are grouped as rheumatic affections of the muscles, joints or heart, and of those general, slow toxic infections of which, heretofore, the source has been regarded as obscure.

Book Reviews.

Chemistry and Toxicology for Nurses. By PHILIP ASHER, Ph.G., M.D., Dean and Professor of Chemistry at the New Orleans College of Pharmacy. Philadelphia and London: W. B. Saunders Company. 1914.

This new volume in the publishers' series of text-books for nurses is intended as an elementary manual for probationers, and a reference work for graduates. After a preliminary consideration of nomenclature, the chemical substances used in medicine are described, with their medicinal properties, doses, and uses. The book is in three parts, dealing respectively with inorganic, organic, and physiologic chemistry. The

toxicology of poisonous substances is considered in conjunction with each. There are three text-figures representative of apparatus. The book is concise, well arranged, and should prove of use and value to those for whom it is written.

A Medical Dictionary for Nurses. By AMY E. POPE. New York and London: G. P. Putnam's Sons. 1914.

This convenient new dictionary aims to provide the derivation, pronunciation, and detailed definition of medical words and terms of special importance to nurses. The dictionary, which occupies thirteen-fourteenths of the volume, is followed by supplementary tables of weights, measures, chemical symbols, abbreviations, elements, poisons, prefixes, suffixes, thermometric scales, and the average composition of common American food products. The book should prove of value to nurses and others in search of this type of information.

The Life and Letters of Nathan Smith, M.B., M.D. By EMILY A. SMITH. New Haven: Yale University Press. 1914.

This volume, published at the time of the centennial of the Yale Medical School, records the life and activities of one of its first professors, Dr. Nathan Smith, previously founder and for several years sole teacher of the Dartmouth Medical School, later associated with the foundation and early instruction of the medical schools of Bowdoin and the University of Vermont. It consists in considerable part of Dr. Smith's private letters, now first printed, and appropriately arranged, which reveal most intimately the character and versatile personality of this distinguished figure in New England medical history. A majority of the letters are to the late Dr. George Cheyne Shattuck, of Boston. The book is attractively illustrated with 24 full-page plates, and there is a delightful introduction by Dr. William H. Welch. An appendix records Dr. Smith's publications, and reprints in full his introductory lecture at Yale on "The Progress of Medical Science."

A Treatise on Clinical Medicine. By WILLIAM H. THOMSON, M.D., LL.D. Octavo volume of 667 pages. W. B. Saunders Company, Philadelphia and London, 1914.

The author has not aimed to produce a book of reference but rather a serviceable book for the practicing physician. In keeping with this idea the style is informal; there are exceedingly few references to the literature and much emphasis is laid on medicinal treatment. There are no illustrations. The very brief space devoted to the morbid anatomy of the various diseases impresses the reviewer as a serious drawback.

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TRANSFER OF THE BOSTON QUARANTINE SERVICE.

IN the two preceding issues of the JOURNAL we have commented editorially on the proposed transfer of the Boston quarantine service from municipal to federal control. At the hearing held on this subject before the Common Council on January 1, the opposition to the proposed change was chiefly, as at the previous consideration of the subject last spring, from the shipping interests of the city. Mr. Jerome Jones, a member of the committee on maritime affairs of the Boston Chamber of Commerce, presented the following letter to Mayor Curley, representing the opinion of his committee on the subject:—

"The Committee on Maritime Affairs of the Chamber of Commerce deem it unwise, in that a change of jurisdiction would be a handicap to our port facilities, and I am not putting the question of facilities above the safeguarding of the community.

"I do not question Dr. Rupert Blue and his sincerity in doing what he can. At the same time we feel that the quarantine regulations at

the port of New York have been safeguarded in every way, and they have been lenient in allowing ships to come up from quarantine with thousands of passengers later than sunset and before sunrise; thus facilitating the landing of the passengers and making the port attractive to both steamship lines and passengers.

"We have no doubt that the first federal officials would be accommodating, but from the experience in southern ports, where the change has been made, it has been found that the boarding officials' watches are always right at sunrise and sunset, and vessels have to wait in quarantine when the many passengers are anxious to go ashore and their friends come from distances to meet them. It not only affects this port, but all of New England and trade tributary to it.

"We feel that when New York adopts the change, as it is doubtful, it will be time enough for us here, and while we respect your desire to save the city's money, it should not be done at the expense of the facilities of the port. The tidal hour has much to do with big vessels coming up to the pier, and the denial of the quarantine officer might often mean waiting 20 hours for the flood tide. Boston and New York are the two largest passenger ports on this continent, and we certainly deserve at this port equal quarantine service."

ON the other hand the proposed transfer was advocated by Mr. Sullivan, the corporation counsel, by Mr. Edward H. McSweeney, chairman of the port directors, and by Drs. H. D. Arnold, G. H. Francis and O. R. Sedgwick, representing the Suffolk and Norfolk Districts of the Massachusetts Medical Society and the Boston Homeopathic Medical Society. At a joint meeting of the executive committees of these organizations on December 22, the following resolutions were passed:—

"That the best interests of the citizens of Boston demand a reorganization of the Health Department. The plan of a Health Commissioner, as a single officer responsible for the work of the Department would, in our opinion, be the most satisfactory solution of the problem, provided he be a man of national reputation and trained in matters of public health and sanitation. The proposed salary of seventy-five hundred dollars should make it possible to secure the services of such a man.

"We therefore recommend the passage of the proposed ordinance, now under consideration by the City Council, for the reorganization of the Health Department.

"Since this ordinance provides for the establishment of a quarantine division, and since His Honor, the Mayor, has recommended the transfer of the city quarantine station to the federal service, we feel that it is appropriate to express an opinion on this matter also.

"It is our conviction that the management of the quarantine station by the federal authorities would be conducive to the better protection of the health of this city and of the country at large.

"This is a matter of the greatest importance in view of the greatly increased danger to be expected from diseases brought by immigrants after the end of the European war.

"We therefore endorse the proposition to transfer the quarantine station to the federal authorities, and recommend the amendment in this particular of the ordinance to reorganize the Health Department."

IN another part of this issue of the JOURNAL we print in full the statement prepared for presentation by Dr. Arnold to the Common Council. This may fairly be taken as representing the attitude of the Boston profession. At the time of the hearing, action by the Council was deferred, but as the decision is one of importance and must soon be made, it is desirable that physicians generally should hold and express definite views. A comparison of the arguments for and against the proposed transfer shows that the opposition to it is based on questions of business convenience and advantage. Such considerations as these are probably ill-founded, as is shown in Dr. Arnold's statement. Even if they were not, they should not be allowed to weigh in comparison with advantages of administration and the interests of the public health.

THE PRACTISE OF MEDICINE IN CHINA.

At the annual meeting of the Boston Medical Library on Tuesday Evening, January 12, Dr. Francis W. Peabody presented an interesting lantern talk on "Western Medicine in China," illustrating the advances made in the introduction of occidental medical science into the orient. Dr. Peabody speaks from recent experience, having returned but a short time ago from his work on the Rockefeller Commission in making a medical survey of China.

In this connection there is a considerable interest in the medical publications which have developed in the far east under the influence of western science. As in other matters, in the domain of medicine there is seen going on at the present time in the Celestial Empire the struggle, hard indeed, but destined to ultimate vic-

tory, of the modern and enlightened against the antiquated, ignorant and hidebound. The modern leaven is, of course, small as compared with the whole vast lump, but it is working and working powerfully. At various points there are well-equipped hospitals, medical schools, and laboratories, and there is now in China a very considerable number of European and American physicians, most of whom have had excellent professional training, while some are men of the highest scientific attainments. One of the agencies by which they make their influence felt is the *China Medical Journal*, which has just reached its twenty-ninth volume. It is published by the China Medical Missionary Association, a representative body, with branches in all the principal districts, and is a periodical which reflects great credit on that organization. One of its departments which is of special interest is that of tropical diseases. It solicits contributions from medical practitioners not only in China, but in Japan, Korea, Siam and the Philippine Islands, and many of its original articles are of great scientific value; such, for instance, as the report, in the issue for November and December, of the researches by Dr. H. E. Eggers of the Laboratory of Pathology and Bacteriology, Harvard Medical School of China, at Shanghai, on the spirochetic infection of ulcers in China.

In the same number of the *Journal* there is to be found an interesting paper by Dr. William W. Cadbury, of Canton, on "Medicine as Practised by the Chinese." While the author freely acknowledges his indebtedness to Jules Regnault's work, "Médecine et Pharmacie chez les Chinois et chez les Annanites," much of his material is the result of personal observation or derived from Chinese scholars familiar with some of the medical classics of their country. He divides medicine in China into two classes: the purely superstitious, which depends upon charms and magic, and the art of medicine as practised by the Chinese physician. In the city of Canton, he says, may be found temples dedicated to the "Spirit of Medicine," and the ignorant believe that the presiding deity will restore health upon the payment of small sums of money and the performance of certain rights. The Chinese physician, however, is a quite different individual from the Taoist priest, although magic and astrology form an important part of his armamentarium.

The practise of medicine in China is unli-

censed, and is usually hereditary, the "skilled" physician handing down his secrets to one of his sons. The study of human anatomy has been hampered by two factors: respect for the dead and the lack of any co-operation or organization among physicians. As the earth has courses of water, so man has courses in the pulse—six in number, three *yang* and three *yin*. The *yang* is the warm principle, actively flowing and symbolized by the sun; the *yin* is the moist principle, passively flowing and symbolized by shadow. If the former predominates there is excitation, and if the latter, depression of the organism; and the equilibrium of these two forces constitutes health. Six vessels carry the active principle, and six the passive, and the two spread through the whole organism by means of gases and the blood. The latter makes a complete circulation of the body about fifty times in 24 hours, passing twenty-five times through the male channels (those of the active principle) and twenty-five times through the female channels (those of the passive principle). The action of these principles depends on twelve organs and each of the organs has a canal by which it communicates with the others. Some of the communicating channels terminate in the hands, and some in the feet, and one of the vessels in the little finger is used to determine the nature of most infantile diseases. The viscera are classified under two groups, the first composed of six in which the *yang* resides, namely, the gall-bladder, stomach, small intestine, large intestine, bladder and left kidney; and the second composed of five viscera in which the *yin* resides, namely, the heart, liver, lungs and right kidney.

Auscultation and percussion are wholly unknown to the Chinese physician, and in making a diagnosis entire reliance is usually placed on the general facies of the patient and the character of the pulse. Sometimes the examination includes the tongue, and thirty-six symptoms are said to be made out from its color and the extent of its coating. The tongue and cheeks vary with the state of the heart, the tip of the nose with that of the stomach; from the general appearance of the face and nose the condition of the lungs may be determined; that of the liver by examination of the eyes and eyebrows, that of the kidneys by the ears, and that of the spleen by the mouth and lips. Each organ has its appropriate color, red corresponding to the heart, white to the lungs, black to the kidneys and bladder, yellow to the

stomach and spleen, and blue to the liver and gall-bladder. Organs also have their own peculiar times and seasons. Thus the heart, the characteristic element of which is fire, is most likely to become inflamed at noon in the summer season. Two substances are found circulating in the body,—gas and blood. The former acts upon the latter as the wind upon the sea, and the result is the production of the pulse in the vessels. More stress is laid upon examination of the pulse than anything else. Usually the physician is satisfied with palpation of the radial in both wrists, but in difficult cases examines the pulse at ten other points in the body. This method of diagnosis is carried out to the utmost refinement, with separate palpations with each finger, etc., and there are no less than twenty-seven varieties of pulse which prognosticate death. The physician must be trained to palpate the pulse so skilfully that by this sole means the nature of a disease, and even the month of gestation in a pregnant woman, may be determined.

Curiously enough, the drugs and other medications employed are weighed out according to a decimal system; but the character of the remedies themselves scarcely corresponds with this enlightened procedure. Often a prescription is given because of the resemblance of a drug to the organ affected. Thus for renal disease haricot or kidney beans are ordered; the red flowers of the hibiscus serve as emmenagogues; saffron is given for icterus. Minerals are administered as salts; plants in the form of roots, stems, leaves, flowers and dried fruits. Tigers' bones are often ground up and given to a debilitated person, and among the other animal substances made use of are the dried bodies of grasshoppers and the shell of the cicada. Impotence is treated by preparations of testicle or of nervous tissue, and diseases of the liver and eyes by pork liver. In certain districts cooked human blood is considered an excellent remedy, and at executions people may be seen collecting the criminal's blood in vessels. Pills are frequently made with a thick coating of paraffin; this is meant to be broken off, and the contents chewed up. They are generally so large that they could not be swallowed otherwise. Various forms of plasters and blisters are applied to the skin, and the actual cautery is in common use. Occasionally acupuncture is resorted to, and 388 points in the body are described as suitable for its performance. The theory on which its use is based is

that if one punctures the vessels connecting different organs the disease will become absorbed.

In the last few years two so-called charitable hospitals have been established in Canton for the treatment of the sick according to native methods, but no surgery is practised at these institutions.

THE TRANSPLANTATION OF TISSUES AND ORGANS.

THE transplantation of tissues in the human body is one of the important developments of modern surgery. Beginning with the simpler forms of skin-grafting, the process has been extended successively to fascia, tendon, bone, and even to such a delicate structure as the cornea. The possibility of transferring these tissues successfully has become of immense value in the plastic treatment of numerous bodily lesions and defects, in the repair of fractures and bone-diseases associated with loss of substance, in the mechanical remedy of certain forms of paralysis, and occasionally in the mobilization of ankylosed joints.

The transplantation of organs, as more recently developed by Carrel and various of the German surgeons, has opened new fields of surgical therapeutic opportunity, which have thus far been but partly explored. The transference of more complex structures, such as kidneys and joints, has hardly advanced beyond the experimental stage; but the possibility of transplanting intestinal segments in the plastic surgery of the vagina and urethra has been satisfactorily demonstrated. The enormous technical difficulty of such procedures will probably always restrict their performance to the hands of specialized experts. There is, however, another important group of organs, the glands of internal secretion, whose transplantation offers important prospect of benefit beyond that derived from the oral or subcutaneous administration of their extracts.

The knowledge of the endocrinous glands is again one of the valuable advances of modern medical science. Beginning with the study of thyroid secretion in the treatment of exophthalmic goitre, it has been extended to the adrenals, the parathyroids, the genital glands, and more recently, by the brilliant surgical researches of Cushing and others, to the pituitary. The complex functions and interrelations of this group

of glands form one of the latest and most fascinating chapters of physiology, and the still undetermined possibilities of their surgical and medical use hold prospect of control and cure of many serious functional aberrations and incapacities.

Among the transplantable organic tissues, one of the most commonly and easily available is the ovary. The problem of preserving ovarian tissue, both for its internal secretion and for ovulation and menstruation, is one that frequently confronts the gynecologist. Dr. Storer, in his leading article in another column of this issue of the JOURNAL, reviews the history, technic and indications of ovarian transplantation, and reports his personal work on the subject. It is a valuable contribution to recent surgical progress.

Hitherto the majority of tissue and organ transplantation has been homoplastic, within the body of the host. Heteroplastic transplants, from one individual to another, or from animal to man, thus far have but a limited field of application, being restricted to the lower, less completely differentiated tissues, like skin, bone, and tendon. This is a field, however, which contains almost limitless possibilities of research. A completed knowledge of the physiology of the glands of internal secretion, and a full development of the successful technic of both homoplastic and heteroplastic transplantation, would place important therapeutic power within the reach of medical and surgical application.

HEALTH CONDITIONS IN BOSTON IN 1914.

A PRELIMINARY report issued on January 4, by the Boston Board of Health, indicates that the death-rate in 1914 was only 15.8, the lowest in the history of the city. This gratifying result is evidence, not only of increasingly good public health conditions, but of the development of an intelligent popular interest in the limitation and eradication of disease.

The actual number of deaths in 1914, with the population numbering 766,136, was 11,808. In 1913, with the population at 750,768, the number of deaths was 11,839. Of the 11,808 deaths in 1914, 2003 were infants. In 1913 the number of infants who died was 2111. The number of

deaths from measles, scarlet fever, whooping cough and tuberculosis was less in 1914 than in 1913, the greatest decrease being with whooping cough, from which there were 97 deaths in 1913, and only 46 in 1914. Deaths from measles were reduced from 77 in 1913 to 63 in 1914; deaths from scarlet fever were reduced from 77 to 65, and deaths from pulmonary tuberculosis from 1064 to 1041. The number of deaths from typhoid fever increased from 60 to 66, and deaths from diphtheria increased from 156 to 168.

The infant mortality rate in 1914, under one year, was only 100 per thousand births, as compared with 110 in 1913 and 151 in 1903. Of the individual causes of death, tuberculosis still leads in the number of fatalities. The following table shows the comparative deaths in certain important groups during the years 1913 and 1914.

DISEASE.	1913	1914
Deaths from typhoid fever.....	60	66
Deaths from measles.....	77	63
Deaths from scarlet fever.....	77	65
Deaths from whooping cough.....	97	46
Deaths from diphtheria.....	156	168
Deaths from pulmonary tuberculosis.....	1064	1041
Deaths from cancer.....	841	875
Deaths from external causes (violence)....	873	829
Deaths of children under 1 year.....	2111	2003

In the same connection there is considerable interest in a report by Dr. Thomas F. Harrington, Director of School Hygiene, on the health conditions of pupils in the Boston public schools in 1914, showing a notable decrease in defectives during the past eight years.

"The total number of pupils now in school whose vision is not normal is 11,039, or 12.08% of the total number of pupils tested, which was 91,326. The percentage of defectives eight years ago was 31.5.

The number of pupils defective in hearing this year is 2538, or 2.8% of the total of 93,024 examined. This represents a substantial reduction of defective hearing from 8.13% eight years ago.

During the past eight years 23,655 cases of defective vision and 4806 cases of defective hearing were corrected. In the same time over 12,000 cases of obstructive adenoids and tonsils were operated on.

The statement that defective vision increases markedly as the children progress in their studies is not borne out by statistics. The percentage of defectives in the elementary and high school grades is nearly uniform, as the percentage in the elementary schools is from 10.74 to 14.70 and in the high schools 10.52 to 11.34."

AN ABSURD MEDICAL BILL.

ON Wednesday of last week, January 6, the General Court of Massachusetts convened for its annual session of 1915. Among many important pieces of medical legislation to be brought before that body during this season, is one piece of meddlesome legislation whose obvious absurdity should lead to its immediate defeat. This is a bill to regulate conditions of surgical practice in this Commonwealth. The provisions of the bill are as follows:—

"Section I. No surgeon, physician, dentist, nor other person, performing, directing or assisting at a surgical or dental operation upon a human, either on public or private property in this State, shall wear the hirsute appendages commonly known as moustache and beard.

Sect. 2. The Boards of Registration in Medicine, and of Registration in Dentistry, acting jointly, shall have full authority to prosecute violations of this act.

"Sect. 3. Violations of this act shall be punished by a fine not exceeding \$50.

"Sect. 4. All acts or parts of acts inconsistent with the provisions of this act are hereby repealed.

"Sect. 5. This act shall take effect upon its passage."

The manifest absurdity of this bill requires no further comment. It might, with equal reason, require of all surgeons that the head should be shaved. Undoubtedly this proposed measure will be promptly defeated.

MEDICAL NOTES.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—At the closing session of the American Association for the Advancement of Science, at Philadelphia, on Jan. 1, Professor W. W. Campbell of the University of California, was elected president for the ensuing year.

Other officers chosen include L. C. Howard, Washington, D. C., permanent secretary; Henry Skinner, Philadelphia, general secretary; Robert M. Ogden, University of Kansas, associate secretary for the South; Albert L. Barrow, University of California, secretary of the Pacific division; and R. S. Woodward, Carnegie Institution, Washington, treasurer.

Next year's annual convention will be at Columbus, O., during the week beginning Dec. 27. A midsummer meeting will take place at San Francisco, Aug. 2 to 7.

EUROPEAN WAR FUNDS.—On Jan. 8 the total of the New York Belgian relief fund amounted

to \$783,954.00; the New York Jewish relief fund to \$282,990.00; the American Ambulance Hospital fund to \$265,006.00; and the American Polish relief fund to \$7,675.81.

On Jan. 9 the total of the New England Belgian relief fund amounted to \$168,512.52; the Massachusetts Red Cross fund to \$95,946.20; the Boston branch of the American Ambulance Hospital fund to \$50,230.45; the Boston Jewish relief fund to \$24,681.10; the New England British relief fund to \$16,418.52; the Boston Polish relief fund to \$10,917.16; and the Boston Russian relief fund to \$10,568.00.

STUDIES ON LEPROSY.—In a recent bulletin (No. 66) of the United States Public Health Service, Dr. George W. McCoy presents the 25th, 26th, and 27th of a series of studies on leprosy, being a continuation of the important work in this subject begun in 1908, by the United States Public Health Service. The present communication deals with studies in immunity in leprosy, with the cultivation of acid-fast bacilli from lepers by the use of symbiotic organisms, and with a statistic study of leprosy in Hawaii. The author finds that the serum of but few lepers agglutinates any acid-fast cultures, and serologic methods are of chief value in making group classifications of such bacilli. Immunization of rabbits with leprosy material does not yield agglutinins for acid-fast cultures. The cultivation of these acid-fast organisms is best made by the use of symbiants.

THE SANITATION OF IQUITOS.—In a recently published reprint (No. 233), Dr. G. M. Converse of the United States Public Health Service, describes a recent sanitary campaign for the improvement of public health in Iquitos, a Peruvian port twenty-three hundred miles from the mouth of the Amazon River and only four degrees south of the Equator. Its average temperature is about 86° F. and it has a high humidity and rainfall. The population consists of about twelve thousand inhabitants, mostly Indians. There is no public water supply, no sewerage system and no local hospital. During the ten years from 1903 to 1913, this town had an average mortality of 40.5 per thousand, increasing to an average of 46.5 from 1910 to 1913, and 49.5 in 1912. The principal work undertaken by the author was the eradication of yellow fever and intestinal parasites, the chief cause of death and disease among the natives. This was accomplished by the regular sanitary methods, and in 1913 the death-rate fell to 28.8 per thousand and in the first half of 1914 to 21. This report presents a striking example of what may be accomplished in the improvement of local sanitary conditions by the application of simple hygienic methods rigorously enforced.

NEW YEAR BEGINS WITH LOW DEATH-RATE IN NEW YORK.—The new year has opened with a

slightly lower death-rate than that of the first week of 1914, the rate for the two weeks under comparison being 14.30 and 14.43, respectively, a decrease of .13 of a point, which is equivalent to a relative decrease of 14 deaths.

The most noteworthy feature of mortality for the week just passed was the considerable increase in the number of deaths charged to pneumonia, there having been 277 deaths reported during the week, as against 225 during the first week of 1914. The increase in the deaths from broncho-pneumonia was distributed among the children at the early ages, while that from lobar pneumonia was distributed among the age group between five and sixty-five years.

The total number of the deaths from infectious and contagious diseases, measles, scarlet fever, diphtheria and croup, whooping cough, typhoid fever, cerebrospinal meningitis and diarrheal diseases was considerably below that of last year.

HARVEY LECTURE.—The sixth lecture, in the current course before the Harvey Society, will be given at the New York Academy of Medicine on Saturday evening of this week, Jan. 16, by Dr. Edward R. Baldwin, of the Adirondack Cottage Sanatorium, on "Immunity in Tuberculosis, with Special Reference to Racial and Clinical Manifestations."

THE CORONER SYSTEM IN NEW YORK.—On Jan. 4, Leonard M. Wallstein, New York commissioner of accounts, filed with Mayor Mitchel a report recommending the abolition of the present coroner system in New York City and the substitution therefor of the system of medical examiners as it exists in Massachusetts.

By examination of nearly four hundred witnesses, the report says, it has been found that "the elective coroner in New York City represents a combination of power, obscurity and irresponsibility which has resulted in inefficiency and malfeasance in the administration of the office"; that of the sixty-five coroners who have held office since consolidation, not one was thoroughly qualified for the adequate performance of his duties; that the incompetent medical work of the coroner's physicians deprives the community of an absolutely necessary deterrent to crime; that because of this fact numerous homicides have undoubtedly failed of detection, and infanticide and skillful poisoning can be carried on almost with impunity so far as the coroner's office is concerned; that coroners' juries have been packed with friends of the defendants appearing before them; that coroners have abused their powers to compel the employment of favored undertakers, attempts have been made to extort money from insurance companies in return for findings in the interest of the companies, and many other forms of petty graft and abuses have been practised. The report urges that the jury system and the coroners' court be

eliminated, the responsibility for criminal investigations be given completely to the district attorney and the police, and the new medical board be composed of experienced pathologists, the chief of whom should be appointed by the mayor as the result of a non-assembled competitive examination.

BOSTON AND NEW ENGLAND.

MEASLES IN STURBRIDGE.—Report from Sturbridge, Mass., on Dec. 31, states that there were then 30 cases of measles in that town, 13 being in one family.

WORK OF MILK AND BABY HYGIENE ASSOCIATION.—The recently issued annual statement of the Boston Milk and Baby Hygiene Association shows that during the year 1914, a total of 4108 babies under one year of age were cared for by the institution.

OPENING OF THE CARTER MEMORIAL HOSPITAL.—On Jan. 1, 1915, the new Carter Memorial Hospital, at Lancaster, Mass., was formally opened, and its keys presented to the trustees of the Clinton Hospital Association. Dr. Walter P. Bowers, of Clinton, presided, and addresses were made by Governor Walsh and others. On Jan. 2 the hospital was opened to public inspection. It is a local institution for the treatment of tuberculosis.

MENINGITIS, PELLAGRA, AND POLIOMYELITIS IN MASSACHUSETTS.—During the month of November, 1914, 11 cases of cerebrospinal meningitis were reported in Massachusetts, 6 being in Boston. During the same month, 9 cases of poliomyelitis were reported in Massachusetts, and 16 in Virginia; 3 cases of pellagra in Massachusetts and 28 in Virginia.

CONVICTION OF A VERMONT DRUGGIST.—In the issue of the JOURNAL for Dec. 3, 1914, we noted the death of 14 persons in Vermont from poisoning by whiskey adulterated with methyl alcohol. The druggist who sold this whiskey has been tried, convicted of manslaughter, and sentenced to 12 or 15 years' imprisonment.

NOTIFICATION OF DEFICIENCIES IN WATER SUPPLY.—The following circular letter was sent on Dec. 31, 1914, by the State Commissioner of Health of Massachusetts, to the local health boards of such towns in this Commonwealth as are dependent on sources of water supply likely to become depleted during the present drought:

"At the present time, on account of the deficient rainfall of the past few months, many wells that are used for domestic water supply are dry and small reservoirs have become considerably depleted. While these conditions are not

extraordinary, they are more serious than have occurred at this time of year for three or four years and, while public water supplies, except those drawn from streams having little storage, are as yet not greatly affected as a rule by these conditions, the private supplies derived from wells, springs, etc., in villages and on farms have in many cases become exhausted and water is being drawn from sources not commonly used.

"In view of these conditions, it is advisable to warn the public, especially that part of it that is supplied with water from private sources, of the dangers of typhoid fever and other diarrheal diseases to which they may be exposed by the taking of water from unusual sources. They should be warned to look carefully to the possible impurity of such sources and to protect themselves against danger of infection, if the source used appears in any way doubtful, by boiling the water before using it for drinking. Especial care should also be taken by physicians to report promptly all suspected cases of typhoid fever and dysentery (winter cholera) to the proper officers.

"In cases where a citizen of a town is in doubt as to the safety of any temporary water supply which he may propose to use, he should apply to the local board of health of the town for advice. If it should happen that any city, town, water or aqueduct company finds itself short of water, or in danger of a shortage, it should apply at once to the State Department of Health for advice as to an additional supply, unless such action has already been taken.

A. J. McLAUGHLIN,
Commissioner of Health.

ADMISSION REQUIREMENTS TO HARVARD MEDICAL SCHOOL.—New requirements for admission to the Harvard Medical School, proposed by the faculty of medicine, have been accepted by the college corporation. Hereafter, candidates may be admitted to the medical school on the following terms:—

"Graduates in arts or science of approved colleges or scientific schools who can furnish evidence (a) that they have such a knowledge of physics, of biology, of general chemistry and of organic chemistry as may be obtained from one year's course in each of these subjects as given in approved colleges and scientific schools; (b) that they have a reading knowledge of French or German.

"Students who have completed two years of work in a college or scientific school of high rank, provided they present certificates: (1) that they have stood in the upper third of their class; (2) that one year's course has been taken in physics, in biology, and in general chemistry and in organic chemistry, and (3) that they have a reading knowledge of German or French."

AN IMPORTANT MEDICAL BEQUEST.—The will of the late Dr. William H. Baker, of Waltham,

Mass., which was filed on Jan. 2 in the probate court at East Cambridge, Mass., contains a bequest of \$50,000 to the Harvard Medical School to endow a professorship of gynecology, on condition that the chair shall be separate from those of surgery and obstetrics. In case the gift should not be accepted on these terms, the fund reverts to the Free Hospital for Women, Brookline, Mass.

HOSPITAL BEQUESTS.—The will of the late Dr. Edward R. Cogswell, of Cambridge, Mass., who died on Dec. 22, 1914, was filed on Jan. 1, 1915, in the probate court at East Cambridge, Mass. It contains a bequest of \$2000 to the Cambridge Hospital.

The will of the late Rebecca H. Hobbs, of Waltham, Mass., which was filed in the probate court at East Cambridge, Mass., on Dec. 31, 1914, contains bequests of \$5000 to the Waltham Hospital, \$1000 each to the Waltham Training School for Nurses, and the Waltham Baby Hospital, and \$500 to the Waltham District Nurses' Association.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending Jan. 5, 1915: Diphtheria, 49, of which 4 were non-residents; scarlatina, 52, of which 7 were non-residents; typhoid fever, 6; measles, 94, of which 1 was non-resident; tuberculosis, 36, of which 2 were non-residents. The death-rate of the reported deaths for the week was 19.06.

Current Literature

MEDICAL RECORD.

DECEMBER 26, 1914.

1. McWILLIAMS, C. A. *Reflex Disturbances Due to Chronic Appendicitis.*
2. *PACKARD, E. N., JR. *Therapy of Fever in Pulmonary Tuberculosis.*
3. BUERGER, L., AND OPPENHEIM, A. *Gangrene Without Organic Vascular Disease.*
4. CROFTON, A. C. *Intestinal Toxemia and Diabetes.*
5. BERKOWITZ, S. *Ehrlich's Aldehyde Reaction for Urobilin.*
6. WARE, M. W. *A New Vesical Calculus Evacuator.*

2. Packard considers the following the important points in the treatment of phthisical fever: Absolute rest in bed, preferably out-of-doors, ample but not forced feeding, hydrotherapy, the judicious use of antipyretics, autogenous vaccines if there is copious, purulent expectoration, artificial pneumothorax in selected cases, and tuberculin cautiously after other methods fail.

[L. D. C.]

NEW YORK MEDICAL JOURNAL.

DECEMBER 26, 1914.

1. BURR, C. W. *Hysterical Astasia-Abasia Occurring in Acute Multiple Neuritis.*
2. LEE, E. W. *Physical Defects a Factor in the Cause of Crime.*
3. BRANTH, J. H. *Physical Defects and Crime.*
4. MEDING, C. B. *Intracapsular Extraction.*
5. TONSEY, S. *Radium and Röntgen Therapy Facilitated by Double Coated Adhesive Plaster.*
6. FRANCE, J. J. *Gonococcus Infection in Women.*
7. O'DAY, J. C. *Syphilis in Simulating Malignant Neoplasms.*
8. ERDMAN, S. *Wounds of Arteries.*
9. PRICE, G. M. *Industrial Sanitary Standards.*
10. WEINSTEIN, J. *Tuberculosis of the Tongue.*
11. HENDERSON, L. J. *The Excretion of Acid in Health and Disease.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

DECEMBER 26, 1914.

1. ELY, L. W. *Orthopedic Surgery: Its Scope and Its Future.*
2. *CHUTE, A. L. *A Plea for a More Extensive Operation in Cancer of the Bladder.*
3. *SQUIER, J. B. *Subtotal Cystectomy.*
4. *SKILLERN, P. G. *Certain Minute Cysts of the Metacarpal Bones Following Trauma, and Their Clinical Recognition.*
5. BARNETT, C. E. *Suprapubic Prostatectomy.*
6. *BARNEY, J. D. *The Ultimate Results of Genital Tuberculosis in the Male.*
7. *NELSON, K., AND HARRIS, E. F. *Observations of the Results of Seven Months' Experience in the Treatment of Syphilis.*
8. WOOLLEY, P. G. *Factors Governing Vascular Dilation and Slowing of the Blood Stream in Inflammation.*
9. GORDON, A. *An Unusual Form of Birth Palsy.*
10. *RITTER, J. *Early Recognition of Pulmonary Tuberculosis by Study of Lymphocytic Picture and Albumin Contents of Sputum.*
11. KING, E. F. *Myiasis of the Urinary Passages.*
12. BALDWIN, J. F. *Adrenal Precocity. Precocious Development of the External Genitals Due to Hypernephroma of the Adrenal Cortex.*
13. WARFIELD, L. M. *A Simplified Method for the Intrameningeal Injection of Neosalvarsan in Syphilis of the Nervous System.*
14. DAVIS, C. M. *A Case of Ulcerative Pneumococcus Enteritis with Peritonitis Following Lobar Pneumonia.*
15. HUBER, G. N., AND FLACK, F. L. *An Unusual Case of Scurv Worms in the Nose and Nasal Accessory Sinuses.*
16. HILDRETH, E. R., AND SUTTON, A. C., *Oidomycosis in Porto Rico.*

2. Chute does not go into the technic of radical operation, but rather devotes his paper to the reasons for such procedure, speaking especially for the more thorough removal of diseased lymphatics.

3. Squier in his paper devotes himself almost entirely to the description of the technic of subtotal cystectomy.

4. Skillern has an extremely interesting article on minute bone cysts of the metacarpal bones, which is worth reading.

6. Barney's paper gives figures of much interest and importance. He finds that tuberculosis of the genital tract is accompanied by old or active lesions in other organs in more than 55% of cases, most of them being in the lung. The genital tract is usually first attacked in cases of genito-urinary tuberculosis.

Over 27% of 113 patients traced died of some form of tuberculosis. Miliary, renal and lung tuberculosis, in order, are the prevailing types of the disease. Barney believes that until ten years have elapsed after operation, no patient can be said to be cured of this form of tuberculosis. In genital tuberculosis, neither the disease nor the operation for its relief seems to impair masculinity. Experience shows that although the prostate and seminal vesicles are involved in most cases of epididymal tuberculosis, this condition will improve or heal after removal of the epididymis. Radical surgical treatment of these organs is unnecessary and unwise.

7. These authors make the emphatic statement that, as compared with salvarsan, neosalvarsan is a comparatively inert drug and its use should be abandoned in favor of the former if we wish to do our patients justice. They state that four injections of salvarsan combined with intensive mercurial treatment give nearly twice as many negative serum reactions as do five injections of neosalvarsan with mercury. The ratio is 64 to 33.3%.

10. Ritter believes that a sputum lymphocytosis showing under the microscope 50% or more of the small mononuclear leucocytes with a moderate amount of albumen by chemical test speaks very strongly for the presence of a pulmonary tuberculosis. In pre-incident or incipient cases of pulmonary tuberculosis a lymphocytic sputum is usually present, with a greater or lesser albumen content; in this the tubercle bacillus may be entirely absent or only occasionally found. The presence of the mononuclear lymphocyte in the sputum in preponderant amounts and a positive albumin test is simply the forerunner or near the beginning of positive findings, for the tubercle bacillus, if not already present in the sputum, will soon be found. [E. H. R.]

ARCHIVES OF INTERNAL MEDICINE.

NOVEMBER, 1914.

1. HEWLETT, A. W. *The Pulse Flow in the Brachial Artery. Reflections of the Primary Wave in Dicrotic and Monocrotic Pulse-Forms.*
2. TILESTON, W., AND COMFORT, C. W., JR. *The Total Non-Protein Nitrogen and the Urea of the Blood in Health and in Disease, as Estimated by Folin's Methods.*
3. *CAPPS, J. A., AND DAVIS, D. J. *An Epidemic of Streptococcus Sore Throat in Jacksonville, Ill., Which Was Traced to the Milk of Cows Affected with Streptococcus Mastitis.*
4. *GAY, F. P., AND CLAYPOLE, E. J. *An Experimental Study of Methods of Prophylactic Immunization Against Typhoid Fever.*
5. GAY, F. P., AND CLAYPOLE, E. J. *Specific Hyperleucocytosis. A Study in Typhoid Immunization.*
6. FITZ, R. *A Case of Diabetes Insipidus.*
7. *HAMBURGER, W. W., AND FRIEDMAN, J. C. *Contributions to the Experimental Pathology of the Stomach. I. Experimental Pyloric Stenosis.*
8. *LEVY, L. H., AND STRAUSS, A. *A Clinical and Bacteriological Study of Hexamethylenamin as a Urinary Antiseptic.*
9. *WEBB, G. B., GILBERT, G. B., AND HAVENS, L. C. *Blood Platelets and Tuberculosis.*
10. HAMMAN, L., AND BAETJER, F. H. *Pulmonary Physical Signs and Roentgen Ray Findings in Healthy Adults.*

3. Capps and Davis report a study of an epidemic of 348 cases of streptococcus sore throat which occurred in Jacksonville, Ill., in the winter of 1913-14. The epidemic was traced to the milk of cows affected with streptococcus mastitis. The streptococci in the milk were found to have hemolytic properties. They did not multiply appreciably at room temperatures because of the inhibiting influence of other milk bac-

teria. They were soon killed by the acidity of sour milk or buttermilk and died out in ordinary butter in a few days. They lived in ice cream for at least three weeks without appreciable loss of numbers or virulence. There was good reason to believe that in this epidemic ice cream played an important rôle as a carrier.

4. Gay and Claypole advocate the testing of typhoid immunity by means of an artificial typhoid-carrier state in the rabbit, and describe their technic. Their experiments show that untreated bacteria, killed and precipitated by alcohol, dried, ground and weighed, do not protect so well as typhoid bacilli that have been sensitized by an immune serum and subsequently treated in the same manner. The sediment of unsensitized bacterial bodies freed from the supernatant, endotoxic fluid contains the immunizing principle almost in its entirety. Alcohol-killed, sensitized cultures protect almost as well as living sensitized cultures, and the sediment of the former better than the living cultures. These sensitized cultures produce a more durable type of immunity and cause less reaction, both local and general. For prophylactic immunization the writers recommend three injections at two-day intervals of such a culture, perfectly polyvalent, in the dose of 3/32 mg. of the original dried culture, which corresponds approximately to 750 million living typhoid bacilli. They consider the skin test with the typhoid solution of far more value than the agglutination reaction with immunized serum as an index of the degree of protection.

7. Hamburger and Friedman conclude from experiments on dogs that pyloric obstruction with resulting motor insufficiency and continuous secretion is probably the most important factor in the production of chronic experimental ulcer. It is probable that in man primary partial pyloric stenosis (from whatever cause) with secondary motor insufficiency and continuous secretion is largely responsible for the progression and delayed healing of chronic ulcer.

8. Levy and Strauss report a study of hexamethylenamin as a urinary antiseptic. They find that in neutral solutions in concentrations up to 1:10 it is neither inhibitory nor bactericidal. Given in doses of 7½ grains three times a day, it is broken down into formaldehyde in all acid urines. Formaldehyde is formed in the bladder in all cases except in those in which the acidity of the urine is higher than normal. In these cases some formaldehyde is formed in the kidneys. With a dose of 7 grains of hexamethylenamin three times a day formaldehyde is never present in concentrations greater than 1:5000. The only organism which is destroyed or whose growth is inhibited by this concentration is the typhoid bacillus. For the destruction or inhibition of other organisms a high acidity is necessary and such high acidity in combination with the formaldehyde may injure the kidney tissue. Hexamethylenamin is undeniably efficacious in typhoid fever for the prevention of pyelitis and cystitis.

9. Webb, Gilbert and Havens studied the blood-platelets in tuberculosis in man and in guinea-pigs. They found the platelets consistently increased in number. A change in altitude from sea-level to 6000 feet increased the number of platelets 12%. Their experiments indicate that the platelets either contain or supply opsonin, and that when added to a lethal dose of tubercle bacilli they either prevent infection or modify its course. The addition of serum to a mixture of blood platelets and tubercle bacilli appears to interfere with this modification. [L. D. C.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 38. SEPTEMBER 17, 1914.

1. v. HANSEMAN, D. *The Cancer Problem.*
2. *RISEL. *The Diagnosis of Smallpox.*
3. *GLASER, F. *Salvarsan in Scarlet Fever.*
4. LETHAUS. *Sciatica Treated by Nerve Injections.*
5. KORR, P. *Iod-prothacmin.*

2. Risel states that small-pox, typically, has an incubation period of about twelve days. This is followed by a pro-dromal period of three days, characterized by a sudden onset of fever, malaise and vomiting. These symptoms subside with the appearance of the smallpox eruption. The rash is very diffuse and is seen over the entire body but may be most abundant on the exposed surfaces. It is first papular, but rapidly becomes vesicular and pustular. It tends to involve the deeper layers of the skin. The blood shows a leucocytosis with marked increase in the large mononuclear cells. In the most severe and acutely fatal cases of smallpox, the eruption may have a hemorrhagic character. The true rash may be preceded by a diffuse and transitory erythema or purpura.

Chicken-pox is the disease most likely to be confused with smallpox. In this the skin lesions are more superficial, and all stages from papules to pustules are seen at the same time. The rash is less thickly distributed on the extremities and more thickly over the abdomen. The characteristic leucocytosis is absent.

Finally, animal inoculation may be used for differential diagnosis. Subcutaneous injections into rabbits of serum from the chickenpox vesicle will produce no reaction, while the serum from a smallpox vesicle will produce characteristic lesions. This procedure, however, takes a few days, and thus is not particularly valuable.

3. Glaser has treated scarlet-fever with salvarsan because a positive Wassermann reaction has been found in various cases at the height of the disease, on account of the beneficial action of the drug in certain ulcerative forms of tonsillitis, and because of its good effect on many protozoan diseases, of which scarlet fever may be one.

Glaser reports a series of 42 cases, including severe cases, and mild cases. His results show that salvarsan had no effect in the most severe cases. In others, the fever and mental confusion were often relieved after the drug was injected. The various complications of scarlet fever were not influenced by the treatment. A diphtheroid membrane, if present, seemed to clear up more readily. Chills, vomiting, or diarrhea appeared in over one-half the cases following injection. [R. F.]

NO. 39, SEPTEMBER 24, 1914.

1. *BONHOEFFER, K. *Psychiatry in War.*
2. AXENFELD, T. *The Surgery of the Eye in Warfare.*
3. GROBER. *Cremation in Warfare.*
4. *BOETERS, O. *The Vaccine Treatment of Gonorrhea and Gonorrheal Complications.*
5. SCHALL, M. *Recent Technical Improvements in Medical and Sanitary Instruments.*
6. SCHUSTER. *The Organization of a Proper Public Health Service During the War.*
7. HAMLOCK. *The Early Diagnosis and Treatment of Epidemics During War.* (Review.)
8. SCHWALBE, J. *A Letter from Ernst v. Bergmann Written During the Russian War in 1877.*
9. DREYER, L. *First Impressions of War Surgery.*
10. OBENDÖRFFER, E. *Letters from the Battle Front.*

1. Bonhoeffer feels that under the physical and physical stress of war, individuals with a predisposition to mental instability become diseased more readily than under normal conditions. The symptoms of such disturbance may take the form of phobias or hallucinations so that a soldier becomes dangerous to himself and his companions, and tends to render military discipline difficult to enforce. Or the symptoms may occur as paralyses or convulsions, developing during a disease. Dementia precox and dementia paralytica, too, seem to develop more readily among fighting soldiers. Therefore Bonhoeffer believes that men who are subject to neuroses should be considered unfit for military duties. Those sol-

diers who develop signs of mental disturbance should be sent from the firing line at once, or if this is impossible should be quieted with hypnotics.

4. Boeters has treated a series of cases of gonorrhea and its complications with intravenous or intramuscular injections of a proprietary vaccine sold under the name of Arthigonin. He believes that vaccine therapy is of great value in local gonorrheal infections (prostatitis, epididymitis, parametritis, etc.), and also in metastatic lesions. Arthigonin is of value in diagnosis on account of the general reaction obtained in specific cases following its injection.

[R. F.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

NOVEMBER 3, 1914.

1. SCHRIDDE. *Congenital Status Lymphaticus.*
2. UNNA. *The Removal of Hair from the Face.*
3. SCHOTTEN. *Fatal Poisoning by Male Fern in a Case of Addison's Disease Clinically Latent.*
4. GERLACH. *The Comparative Dose of Roentgen and Gamma Rays.*
5. KOHLRAUSCH. *The Physical Basis for Radium Therapy.*
6. WOLLENBERG. *Nervous Diseases Among Those in the War.*
7. MÜHLENS. *Peliosis and Relapsing Fever.*
8. WALTHER. *Hydrogen Peroxide and Its Preparation in the Treatment of Wounds.*
9. HEDDÄNS. *The Serum Treatment of Tetanus.*
10. VERTH. *Directions for the First Treatment of the Wounded in a Sea Fight.*
11. LOOSE. *Roentgen Examinations in the War.*
12. SCHANZ. *Spectacles for Gunners.*
13. SCHLANGE. *Surgical Observations and Experiences in the Field.*

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 45. Nov. 10, 1914.

1. *HOLZKNECHT. *Localization of Foreign Bodies.*
2. NIEDEN. *Technic of the Abderhalden Dialysis Reaction.*
3. *PÖHLMAN. *A Fresh Infection of Syphilis in Tabes Dorsalis.*
4. DIETERICH. *What Varnishes Are Suitable for Wounds.*
5. SCHREDDE. *The Management of a Base Hospital.*
6. KOHLRAUSCH. *The Physical Basis for Radium Therapy.*
7. *FRAENKEL. *Gas Gangrene.*
8. FRANKE. *A Case of Gas Phlegmon.*
9. HOTZ. *Wounds of the Central Nervous System.*
10. GULEKE. *The Treatment of Gunshot Wounds of the Spinal Cord.*
11. KUHN. *An Apparatus for Local Anesthesia.*
12. SIMON. *The Danger of Anaphylaxis in the Serum Treatment of Tetanus.*
13. *EURICKE. *The Treatment of Tetanus with Magnesium Sulphate.*
14. ANGERER. *Serum and Symptomatic Treatment of Tetanus.*
15. BANDORF. *Contribution to the Treatment of Infected Wounds and the Rapid Healing of Large Defects.*
16. PITZNER. *Concerning Wounds of the Bladder.*
17. NOBLING. *Concerning Wounds of the Bladder.*
18. MÜHLENS. *Typhus and Relapsing Fever.*

1. Several illustrations with good descriptions are given showing various techniques which are of use in localizing foreign bodies in the skull and trunk and limbs.

3. Pöhlman gives in detail the case of a man infected with syphilis 36 years previously and having definite signs and symptoms of tabes dorsalis who

presented himself for treatment with a primary lesion typical in every diagnostic point except that spirochetæ were not looked for. The incubation period, course of the lesion and reaction to mercury and salvarsan were characteristic. Pöhlman believes it to be a fresh infection on top of an old infection.

7. Gas gangrene: If there is a pure infection of the gas bacillus no suppuration takes place and the only sure way of differentiating from malignant edema is by animal inoculation which takes from 12 to 18 hours. Staining is also fairly accurate as the differences between the gas bacillus, anthrax and the germ of malignant edema are well marked. The treatment consists first in getting oxygen into the tissues by means of free incisions, oxygen and hydrogen peroxide. Amputation may be best. The patient's strength must be kept up.

13. Euricke is not favorably impressed with the use of magnesium sulphate: He used it on eight cases with poor success as the sickest cases were little if any influenced. He gave an intradural injection of 10 c.c. of 10% sol. and 8 c.c. three days later. He insists that it can never take the place of the serum.

[E. L. Y., Jr.]

BULLETTINO DELLE SCIENZE MEDICHE.

SEPTEMBER, 1914.

1. VANNINI, G. *The New Diets in the General Hospital of Bologna.*
2. *BONOLA, F. *Contribution to the Study of the Grey Commissure of the Thalamencephalon.*
3. CAVINA, G. *An Interesting Case of Cardiophtosis.*

2. As a result of his anatomic investigations, Bonola concludes that the grey commissure of the thalamencephalon in man is the rudiment of a commissural nucleus analogous to the nucleus of the median line in the lower animals. In phylogenesis this nucleus has become involuted until it has reached the low development in the human species, and in ontogenesis also it has undergone important involutionary modifications.

[R. M. G.]

Miscellany.

THE TRANSFER OF THE QUARANTINE STATION.*

MODERN maritime quarantine is not a matter of solely local character and importance, on account of the fact that large numbers of persons are in transit through the ports of entry to various places throughout the whole country. Only a relatively small proportion of immigrants landing here remain in Boston. It is as much a matter of national concern as the immigration service, or the coast defenses. The expense of an adequate quarantine service should be borne by the National Government and not by the City.

Uniformity of quarantine regulations and of quarantine procedure throughout the ports of the country are desirable, not only for the protection of the health of the people, but in the interest of commerce.

It is to the advantage of the shipping interests to have only one set of regulations to meet in the various ports of the country—the minimum

* A statement prepared for presentation by Dr. H. D. Arnold before the Boston Common Council.

regulations prescribed by national law. Local boards must live up to these requirements—but they may impose additional restrictions. Where the local and national services both exist at the same port, there is danger of conflict and confusion, and of consequent delay.

If the quarantine is under federal administration, the quarantine work and the inspection of immigrants—administered by the same department of the public service—can be carried out as efficiently as at present, yet with a saving of time.

It is believed that in the long run federal control of quarantine will be fully as acceptable to the shipping interests as local control. This has been the experience where this system has been adopted.

The advantage is still greater in times of danger, when it is known that quarantinable diseases exist at ports from which vessels come, or in countries from which the immigrants come. Such information is reported promptly to the Public Health Service, either through its own agents or the representatives of the Department of State. If the Public Health Service has control of quarantine, the necessary measures for protection—which it would enforce any way—can be taken without delay, and can be arranged so as to cause the least possible delay and inconvenience to shipping that is compatible with safety. Under such conditions of danger, not only would the direct control of quarantine by the Federal Government be of advantage to the shipping interests, but it would better guard the health of the country. One organization, which can inspect abroad at the ports of departure, and again at the ports of entry, and which has authority to follow cases over the country, must be more efficient than if an independent body is interposed as the middle link of this chain.

Such conditions of danger we must face in the near future. This is the opinion of the medical profession, of the Public Health Service, and of all who have given serious thought to the situation. This is due to the European war.

Proper hygienic measures are impossible under the conditions in which the vast armies are fighting. The medical service is inadequate. Typhoid fever is prevalent. It is reliably reported that cases of cholera have occurred, and we know this disease became prevalent in the Balkan war. We recall the ravages of the plague in Manchuria during the Russo-Japanese war, and there is danger of the introduction of this disease through the Russian army. It will be a miracle if Europe is not involved in epidemics of these diseases before the war ends. And soon after we shall have hordes of immigrants from the infected regions.

Cholera and plague are the two diseases most to be dreaded—and expected through the war. The danger from smallpox coming from Southern Europe will be increased. The most efficient protection is none too good. Federal control is

better than local control under these circumstances—in fact, it cannot be avoided.

If we grant, for the sake of argument, that the shipping interests might enjoy certain temporary advantages if the quarantine remains for a time longer under local control, they would lose much more in the apparently inevitable control by the Federal Government when we face these dangers in the near future. The change in the face of danger would mean serious delay in establishing an effective organization,—which could now be inaugurated without inconvenience.

Should cases of cholera or plague reach this port, and gain a foothold through ineffective preparation, the loss to the shipping interests would be enormous; and the expense to this community in eradicating these diseases would be immense. We have only to cite the recent experiences of New Orleans and San Francisco to enforce this lesson.

It is recognized that under the ordinary conditions of the past our local quarantine service has been efficient. It can hardly be claimed, however, that its officers have had as good experience as those available in the Public Health Service have had, in dealing with emergencies of the kind expected. Furthermore, the equipment of our quarantine station is entirely inadequate to deal properly with such emergencies.

It is folly to wait until the emergency is upon us, that is, if we have any regard for the commerce of this port. What commerce needs is a station not only to accommodate persons who are actually sick, but to provide properly for those who are well and must be detained for observation. A steamer should be able to discharge its passengers at once, be disinfected, and proceed with the least possible delay. Anything less than that means serious financial loss. Proper equipment of this station cannot begin too soon. It means a large expenditure—perhaps more than a hundred thousand dollars. The National Government is ready to take up this problem and undertake the proper development of this station. The citizens of Boston should not be called upon to bear this expense. Yet, unless we surrender the quarantine to federal control, we must undertake this work ourselves or we recklessly endanger our health and the business interests of the whole community.

Hitherto the shipping interests of this port have opposed the transfer of quarantine from local to federal control. The medical profession is unwilling to believe that they would urge their own interests at the expense of the welfare of this whole community; and it concludes that they cannot have had a realizing sense of the dangers that are so apparent to medical men in the near future.

I understand that the shipping interests have maintained that they would be subjected to restricted hours of service and to delay through appeals to Washington, which they would not be subjected to by local authorities.

I am assured by Surgeon-General Blue, of the Public Health Service, in answer to my direct questions, that:—

Under Federal control of quarantine, the convenience of vessels as to time of examination will receive as much consideration as has been given by the local authorities, and that there will not be any stricter enforcement of regulations about hours of quarantine.

The officer in charge of the Boston quarantine station, if it should be transferred, would have as absolute authority as possible; and the result, as far as concerns possible appeals, would be as fully as satisfactory as at present.

This is the fixed policy of the Department, and is not dependent upon the individual in charge at any given time.

It has also been urged, I believe, that Boston should not make this change until it is also made in New York and Baltimore—rival ports. It is difficult to understand wherein the advantage of local control would lie, under the above guarantees, because it is expressly stated that the local service does not give any advantage by lax regulations, but only by a willingness to be accommodating. Even if it were true that some slight advantage to shipping interests lies in local control, when quarantine conditions remain as quiet as in the past, we must look ahead and consider the interests of this port. We are almost sure in the near future to be obliged to meet conditions of danger, in which the Federal Government will feel obliged to step in and exert its authority. With the inadequate provisions of our station, Boston, as a port, would suffer seriously in competition with these other ports.

For the above reasons we earnestly urge the City Council to authorize at the present time the transfer of the Boston quarantine station to the control of the Federal Government. In addition, it would seem probable that the shipping interests would receive more coöperation, if we thus meet the wishes of the National Government in its plans to protect the country against the importation of disease.

BRITISH RED CROSS HOSPITALS.

THE following details of the British Red Cross Hospitals at Calais and Dunkirk appeared in a recent issue of the *British Medical Journal*:

“It seems sometimes to be assumed in England that Calais and Dunkirk are British hospital bases. This is not the case; neither of them is occupied by the British forces, and our own Army Medical Service exercises no control over the medical arrangements existing therein. It occasionally happens that a British soldier gets included in a batch of French or Belgian wounded, and is taken to one of these towns for

treatment, and since these towns are not far removed from the British lines, unsanitary conditions in them, or rather, the existence of a considerable amount of epidemic disease, might complicate matters for our own army authorities. These towns have, however, a direct interest for the British public, owing to the fact that there are established within them an aggregate of about ten voluntary hospitals of British origin. For the most part they are working under the nominal control of the French or Belgian authorities, but at one time and another nearly all of them have received more or less extensive assistance from or through the British Red Cross Society itself, and still require it. Moreover, the ambulance work connected with those at Dunkirk is under the direct control of this Society.

"Of the two hospitals at Calais, one is concerned with the special arrangements proposed for the benefit of the Belgians suffering from typhoid fever. I am unable to describe it more precisely, for at the time of my last visit to Calais it was not complete. The other hospital has been at work for some weeks. It owes its foundation, I understand, to a subscription got up in the Baltic Exchange in London, and is fortunate in having its nursing arrangements in the hands of a lady who, at the time of her appointment, had only recently returned from a long tour of corresponding work in the Balkans. This hospital, which ranks as a British Red Cross institution, shares the Sophie Berthelot School—a very large building—with a French Red Cross hospital, and can accommodate 80 or 90 Belgian wounded. A third extemporized institution in the town should also be mentioned, though except for the fact that most of its nurses have been supplied by the British Red Cross Society, I do not know that it can be regarded as in any wise British. This is the Jeanne d'Arc Hospital. It is under the control of Professor Depage, whose chief assistant is Dr. J. van de Velde, and is doing some very admirable surgical work.

"Of the seven hospitals in Dunkirk, much the largest is that known as the Duchess of Sutherland's Hospital. It has about 70 beds, and, under the very active control of Millicent Duchess of Sutherland herself, has been leading a useful if somewhat ambulatory existence almost since the beginning of the war. Another—and one of the youngest—is supported by the Quaker community, and is apparently very well organized. A third, which represents Edinburgh and the Border towns, has a very strong staff, but seems to be badly off for funds—a malady from which most of the hospitals in Dunkirk appear to suffer. As they are all quite small institutions, and with one exception are all housed in rather flimsy buildings of the summer residence order, it is possible that their common object would be better attained if a process of amalgamation were carried out. That object is the benefit of the French wounded, and its desir-

bility is not in the least diminished by the fact that the principle on which the French medical authorities are working is that of evacuating to his own territorial area every wounded man who can possibly be moved. It might be well if the small committee which represents them with the French authorities besides bringing about one or more amalgamations, were strengthened by the inclusion of a larger French official element.

"The voluntary hospitals at British bases, such as Boulogne, Rouen, Paris, and Havre, are in a different position; they all work under the general authority of Sir Arthur Sloggett in his double capacity of Director-General of the Army Medical Service (overseas) and of Chief Commissioner of the British Red Cross Society and St. John Ambulance Association. As the operations of the British Red Cross Society in France now extend over so wide a field, and it is obvious that they will have to be continued for a very long period, it seems to be thought best that general administrative control should be placed in the hands of someone accustomed to the management of large commercial undertakings."

MASSACHUSETTS SOCIETY FOR MENTAL HYGIENE.

THE Massachusetts Society for Mental Hygiene, an organization recently formed in this state, has issued as its first publication a report stating its aims and purposes, the following quotations from which indicate the field in which the society purposes to work:—

"During the fiscal year ending Nov. 30, 1913, there were admitted to the various State hospitals 5007 patients. During the same period there were under care in the various hospitals 889 epileptics, 1444 inebriates, 18,971 insane (including those in private hospitals), making a grand total for feeble-minded, epileptic, inebriate and insane under care during the year, of 24,005. The hospitals spent during the year \$4,264,919.71, which sum was more than one-quarter of the State's total expenses for the year.

"These figures, impressive in size though they are, obviously do not represent the whole number of persons affected, since, with few exceptions, each patient represents a family; nor the total cost, since to the above must be added the cost of rearing and educating those who become incapacitated through mental disease, the loss in earning capacity, etc.

"If all this were unavoidable, it would be well to say little. But much of it is avoidable. Many of the forms of mental disease are subject to control just as are tuberculosis, typhoid fever, or smallpox. Each of the three great causes producing the above toll is fundamentally preventable. The problems asso-

iated with them are admittedly numerous and intricate, but the fact remains that they are the producers of the great majority of mental diseases, and unnecessarily so. The society aims to educate the people as to the real causes of mental disease and to instruct the general public in plain and tested measures for preventing disease.

"The society proposes to provide competent speakers to address groups in any part of the state, on the causes and prevention of mental disease; to distribute such pamphlets and leaflets as will interest and inform the general public; to familiarize the public with the methods used by the state in the care and treatment of mental cases; to maintain for general use a collection of literature on the subject of mental disease and its prevention, together with information in regard to progress made in other states and communities in the care and treatment of mental cases; to furnish information to physicians, social workers and others, as to the public facilities for the diagnosis, care and treatment of mental cases, and as to the laws, rules and practice in regard to availing themselves of these facilities; to study, so far as time and funds will permit, and to stimulate others to study, the different phases of the problem of mental hygiene, and to publish the results of such studies."

The officers of the society are: President, Judge Harvey H. Baker; vice-president, Dr. Walter E. Fernald; secretary, Dr. Charles E. Thompson; treasurer, John Koren; executive secretary, Dr. Frankwood E. Williams.

Among the directors are: Pres. Eliot, Dr. James J. Putnam, Dr. Alfred E. P. Rockwell, Worcester; Miss Edith N. Burleigh, Dr. Henry C. Stedman, Prof. Robert M. Yerkes, Dr. George C. Tuttle, Waverley; Rev. Michael J. Scanlan, Dr. Everett Flood, Monson; Bishop Lawrence, Frank L. Randall, Dr. Walter Channing, Supt. Ayer, Robert A. Woods, Dr. Ernest V. Scribner, Worcester; Edwin Mulready, Dr. E. E. Southard, Pres. Butterfield, Amherst; Dr. Irwin H. Jeff, Norfolk; Dr. John A. Houston, Northampton; Dr. Herbert B. Howard, W. Murray Crane, Dalton; and David Snedden.

THE FRENCH BIRTH-RATE.

THE following data about the diminishing French birth-rate were published in the issue of the *Lancet* for Dec. 12, 1914:—

"The diminishing birth-rate, disquieting as it always is, is more so at the present time, when it has so important a bearing on events. The births fell from 750,651 living children in 1912 to 45,539 in 1913. So low a figure had never been recorded, with the exception of 1911, when it was regarded as deplorable. To estimate the lamentable and continued shrinkage of the French

birth-rate it suffices to recall that the annual mean of living births was 945,000 during the period 1872 to 1875, that since 1907 the number of births has fallen below 800,000, and since 1911 below 750,000. That is to say, that in less than 40 years the births in France have diminished by 200,000 a year. The proportion of living children notified to 10,000 inhabitants was 188 in 1913, as against 190 in 1912, 187 in 1911, 196 in 1910, and 205 in 1906. The shrinkage increases year by year. It is true that in all the great countries of Europe the birth-rate is decreasing, but in a much less degree than in France, and, moreover, the annual excess of births over deaths is proportionately from six to ten times greater than in France. Thus, for 1912 the excess of births over deaths per 10,000 inhabitants was in France only 15. In the same year it was in the Low Countries 158, in Italy 140, in Hungary 130, in the German Empire 127, in Austria 107, and in England 105. Last year the excess was 41,901 births, or only 10 per 10,000 inhabitants. The excess of 1912 was 57,911, or 15 per 10,000. There has thus been a diminution of one-third. This diminution springs from a simultaneous deficit of 5112 births and an increase of 10,898 deaths. Last year an excess in births was noted in 49 departments in place of in 56 in 1912. The departments in which the birth-rate exceeds the mortality are those of the Nord, Pas de Calais, Bretagne, the frontier regions of the North-Est, Limousin, and Corsica. On the other hand, Normandy and Dauphiny continue to depopulate. The proportion of births per 10,000 inhabitants was 196, as against 198 in 1912. The departments in which the birth-rate was highest were Pas de Calais, 266 children per 10,000 inhabitants; Finistère, 259; Morbihan, 248; Seine Inférieure, 240; Meuthe and Moselle, 239; Côtes du Nord, 236; Lozère, 219; Doubs, 217; Nord, 216; Mayenne, 213; Vendée, 211; and Vosges, 210. Those in which it was lowest are the Valley of the Garonne and Bourgogne; Gers, 129; Lot et Garonne, 134; Yonne, 137; Nièvre, 141; Allier, 143; Lot, 145; Haute Garonne, 147; Gironde, 148; and Ariège, 149. The number of deaths, 703,638 (stillbirths 31,119, excluded) is greater by nearly 11,000 than that of 1912, which was the lowest recorded since the beginning of the present century. The ratio of deaths for the entire population was 178 per 10,000 inhabitants, as against 172 in 1912, 196 in 1911, and 179 in 1910. The death-rate has risen in 64 departments, and particularly in the Bouches du Rhône, the Dordogne, the Var, Haute Savoie, Corsica, the Somme, Haute Vienne, Aveyron, and Tarn-et-Garonne. The Norman and Breton departments continue among those furnishing the largest proportion of deaths."

The phenomena of the French birth-rate are not only of the greatest sociologic significance, but have added importance in view of the possibility of a long continuance of the European war and the imperative need of constant reinforcements.

BELGIAN PHYSICIANS' RELIEF FUND.

The following is the report of the Treasurer of the Committee of American Physicians for the Relief of the Belgian Profession for the week ending January 2, 1915.

Contributions:

H. F. W.	\$ 25.00
B. C.	2.50
D. W. C.	25.00
V. P. G.	25.00
Mrs. J. B. M.	100.00
E. F. B.	5.00
C. W. N.	25.00
In Memory H. H. C.	10.00
S. J. M.	15.00
D. B.	25.00

Total\$257.50

Disbursement None

Contributions previously reported. 405.00

Grand total\$662.50

The following local contributions are also gratefully acknowledged:

Dr. David W. Cheever	\$25.00
In Memory of H. H. C.	10.00
Dr. E. S. Boland	5.00
Dr. F. W. Stetson	10.00
Dr. Henry M. Swift	10.00

\$60.00

NOTICES.

Physicians visiting the city will be cordially welcomed at the following clinics on the days and hours specified.

THE BOSTON CITY HOSPITAL.—After January 1, 1915, public operations will be performed in the Surgical Amphitheatre each week, on Thursdays, Fridays and Saturdays, at 10 o'clock.

Thursday: First Surgical Service. Dr. Blake.

Friday: Third Surgical Service. Dr. Nichols, and Fourth Surgical (G-U) Service. Dr. Thorndike.

Saturday: Second Surgical Service. Dr. Lund.

Notice of these operations will be sent to anyone expressing his desire to receive it.

MASSACHUSETTS GENERAL HOSPITAL.—1. A surgical clinic Tuesday, at 12, in the out-patient amphitheatre. 2. Operations in the Bigelow amphitheatre Saturdays from ten to one. 3. Operations in the Surgical Building daily except Sunday, from nine to one. 4. Daily surgical ward visits at which visiting physicians will be welcome. 5. Clinic in medicine and pathology Tuesday at twelve, by Drs. R. C. and H. Cabot and O. Richardson. 6. Medical clinic Thursday at twelve, by Dr. D. L. Edsall.

PETER BENT BRIGHAM HOSPITAL.—Physicians visiting the city will always be cordially welcomed at the Peter Bent Brigham Hospital.

The medical visit takes place regularly every morning beginning at 10 o'clock.

Operations are usually going on throughout the forenoon in the surgical amphitheatre.

The surgical clinic is held in the clinical amphitheatre on Wednesdays at 12.30 p.m.

The medical clinic is held in the clinical amphitheatre on Mondays at 12.30 p.m.

The clinico-pathological demonstration is held in the clinical amphitheatre on Fridays at 3.30 p.m.

BOSTON MILK AND BABY HYGIENE ASSOCIATION.—For the week beginning January 18, there has been booked at B. P. Keith's Theatre a one-act play entitled "Milk," by Miss Una Clayton, which aims in a very popular way to teach the lesson of the importance of

pure milk with special reference to infants and baby hygiene.

On Tuesday morning, January 19, at 11 o'clock, a public meeting will be held at Keith's Theatre at which Miss Clayton will explain her purpose in writing and presenting this play. At the same meeting there will be shown moving pictures dealing with the production of clean milk and welfare work for babies in large cities. This meeting will be held under the auspices of the Milk and Baby Hygiene Association of Boston. Admission will be free.

SOCIETY NOTICE.

NEW ENGLAND PEDIATRIC SOCIETY.—The thirty-fifth meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, January 29, 1915, at 8.15 p.m.

The following papers will be read:

1. "Acidosis in Children," Arthur A. Howard, M.D., Boston.

2. "Parenteral Immunization in Conditions of Proteid Sensitization," J. L. Goodale, M.D., Boston.

3. "Weaning—Its Relation to Anaphylaxis as Shown by Differential Blood Counts," H. C. Berger, M.D., Boston.

Light refreshments will be served after the meeting.

E. M. BUCKINGHAM, M.D., *Pres.*

R. M. SMITH, M.D., *Sec'y.*

RECENT DEATHS.

DR. HENRY DUSENBURY of Williamsburg, N. Y., died recently in that city. He was born at Albany in 1833 and received the degree of M.D. in 1866 from the New York College of Physicians and Surgeons. He was at one time a United States Army Surgeon. He is survived by his widow and two sons.

DR. KLAUS HANSEN, who has died recently at Bergen, Norway, was born in 1843. He was chief physician of the Municipal Hospital at Bergen and a Fellow of the Norwegian Academy of Medicine and was a leader in the national movement for the eradication of tuberculosis.

DR. JAMES STOPP SHAW, who died at Beachmont, Mass., on January 1, was born at Newcastle, England, in 1838. Migrating to the United States in 1852, he studied dentistry and settled in practise successively at St. Johnsbury, Vt., Sheffield, Iowa, and Fremont, Neb. Returning to Boston, he undertook the study of medicine and received the degree of M.D. from Boston University in 1876. He was a member of the Massachusetts Homeopathic Medical Society, the Boston Homeopathic Medical Society and an assistant in gynecology at the Boston University Medical School. He is survived by his widow.

DR. ALBERT VAN GEELUCHTEN, Professor of Neurology at the University of Louvain, died on December 9, at Cambridge, England.

APPOINTMENT.

Dr. E. O. Crossman of Lisbon, N. H., has been appointed Superintendent of the New Hampshire State Hospital.

BOOKS AND PAMPHLETS RECEIVED.

Fever, Its Thermotaxis and Metabolism, by Isaac Ott, M.D. Paul B. Hoeber, 1914.

Lead Poisoning. Lectures by Sir Thomas Oliver M.D. Paul B. Hoeber, 1914.

The Boston Medical and Surgical Journal

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Addresses.

MEMORIAL ADDRESSES.*

I.

FRANCIS BISHOP HARRINGTON, M.D.

By HERMAN F. VICKERY, M.D., BOSTON.

FRANCIS BISHOP HARRINGTON was of old New England stock, being descended in a direct line from Robert Harrington, who was one of the selectmen of Watertown, Massachusetts, for fifteen years, beginning in 1679. Robert's grandson received the degree of A.B. at Harvard in 1728. Four generations later came the subject of our sketch. He was born in Salem, August 15, 1854. Within six years his father died, at the early age of thirty-three, leaving three sons to be reared by his widow. In this she received substantial aid from her husband's brother, but the little household had frugal ways. In wartime the children were not allowed both molasses and butter on their bread. The mother was a remarkable woman, with the highest sense of truth, honor, and justice, wise and absolutely unselfish. The children of such a mother were fortunate and it was natural that she received to the end the greatest love and veneration. Their home was on the outskirts of the town, purposely so located by the invalid father, and Dr. Harrington never forgot the happy existence he led as a boy, summer and winter, except for the interruption of school hours, in the open fields and rocky caves of Salem. We can see then that various favorable influences acted on young Harrington: his ancestry, a love and opportunity for outdoor sports, the good schools of Salem,

the modest worldly circumstances desiderated by Solomon, and above all, a perfect mother.

He entered Tufts College in 1873 and was duly graduated A.B. in 1877, standing as to scholarship about seventh in a class of seven-teen. "He quickly won the respect and confidence of his teachers and of the whole student-body." In athletic pursuits he showed general excellence and in the newly-introduced game of football, in which he had had no special training, he was preëminent. A classmate, Professor William M. Hooper, says: "In the great victory won by Tufts [over Harvard] on Jarvis Field, in the autumn of 1875, he was not only unquestionably the best player on our eleven, but proved to be practically invincible to the attacks of our opponents. With the ball safely tucked under his left arm and his long right arm swinging in front like the boom of a derrick, he would tear down the field to a touchdown, leaving in his path a line of Harvard men on their backs." During his college career, he made as has been said, a favorable impression upon the faculty, and in later years he was more than once consulted by the authorities as to matters of college policy.

On leaving Tufts he entered the Harvard Medical School, living for the first year in the College Yard with his cousin, the late Dr. Charles Harrington. During 1880-1881 he served as surgical house pupil in the Massachusetts General Hospital, and in 1882 he received the degree of M.D. He played football on the varsity eleven the first year he was in the Medical School but his whole heart was not in the game. His profession had inspired a deeper and worthier love. Still throughout his life he enjoyed greatly outdoor recreations: tennis, golf, skating, tobogganing, camping, and fishing for trout and salmon in the Adirondaeks and New Brunswick. Often he joined in games with his children, as young

* Read at the meeting of the Boston Society for Medical Improvement on November 23, 1914.

in his spirits as they. Those who were matched against him in any game did not find it wise to think he was beaten till it was entirely over. He did not particularly enjoy sailing but he visited Europe and Bermuda and the Panama Canal. His excursions showed his wonderful recuperative powers and gave a literal meaning to the word "recreation". For example when he started for Bermuda last spring, he had high blood-pressure, and was worn down with work and agonizing abdominal pain, yet in a few days he was so comfortable and joyous and active that it was not easy to believe that his previous symptoms could have had an organic cause.

Throughout his life he read constantly, keeping well abreast of all professional advance and also of the world's progress in general. He had good musical ability. He had a keen sense of humor and caught the diamond flash of a joke wherever it might be; but for him to enjoy it, fun had to be clean and kindly. He faced the truth fearlessly but also he was brave and hopeful and did not forget that the prophecy of a physician may carry with it its own fulfilment. He did not think it wise that the patient should bear the burden of all the untoward possibilities of his condition and he was willing in a critical case to throw his own reputation into the balance if that might help to incline it in the right direction.

In 1882, he began the general practise of medicine in Boston; and in October of the same year he married Miss Abbie Josephine Ruggles of Fitchburg. Of this marriage I cannot omit to say that throughout his life it brought him happiness and inspiration. In 1884, he was appointed physician to out-patients in the Massachusetts General Hospital. Two years later, at the request of others and in accordance with his own preference he was transferred to the surgical side. His subsequent promotions, appointments, and honors have been enumerated in the BOSTON MEDICAL AND SURGICAL JOURNAL of July 16, and in the *Harvard Graduates' Magazine* of September, 1914. They need not be rehearsed now. Our purpose is to discourse, like the storm-tossed Trojans, about our departed comrade. "*Amissos longo socios sermone requirunt.*" What sort of a man is it whose loss we mourn, or rather for whose example and companionship these many years we rejoice? He was big and strong, singularly well proportioned, and handsome. His blue eyes were keen but friendly. His countenance revealed strength, intelligence and refinement. His smile gave warmth and cheer. He had modesty, dignity, common-sense and unusual sagacity. He was high-spirited but he kept his temper. Under provocation, his voice became lower and gentler. He did an immense amount of work faithfully. He was efficient in emergencies but he did not wait for the rare occurrence of unusual needs, to serve others. The little duties and the little kindnesses were constantly and most graciously performed. One inferred his religion from his life.

He was a first-rate physician as well as surgeon, and he would have been eminent in his profession if he had never operated. The time came however, about fifteen years ago, when it was physically impossible for him to continue in general practise, so that he occupied himself with surgery exclusively, with brilliant success. His methods have been discussed elsewhere from a technical standpoint. What impressed the ordinary professional observer was his good judgment and thoroughness and the usually successful outcome. And, as was said of him at the meeting of The Massachusetts Medical Society on the day of his funeral, every patient became a friend.

His classmate, Prof. Hooper, describes him well, in the words of President Eliot: "A man of quick perceptions, broad sympathies, and wide affinities; responsive but independent; self-reliant but deferential; loving truth and candor, but also moderation and proportion; courageous but gentle; not finished but perfecting."

The world is better because he lived.

II.

THOMAS MORGAN ROTCH, M.D.

BY CHARLES HUNTER DUNN, M.D., BOSTON.

THE death of Dr. Rotch on March 9, 1914, was a great shock to all of us whose close association with him had made us particularly interested in seeing his plans attain their full completion. His death marked the passing of one of that group of men who played conspicuous parts in the modern revolution of the practice of medicine. The pioneer workers in Pediatrics were but a small group of men, and among these, both as a teacher and a writer, Dr. Rotch had a wide influence upon his profession.

Dr. Rotch was born in Philadelphia on December 9, 1849; received his academic degree at Harvard in 1870, and his medical degree from the same institution in 1874, and served a term as house pupil at the Massachusetts General Hospital in the autumn of 1873. In 1874 he married Helen Rotch, the daughter of William J. Rotch and Emily Morgan of New Bedford. They had one son, Thomas Morgan Rotch, Jr., who was born on May 21, 1878.

At that period no young man's medical education was supposed to be complete without study in Europe, and Dr. Rotch spent two years studying in Germany, Paris and London. When he returned, there was no one in Boston whose practice was devoted exclusively to the diseases of early life. Disease in infancy and in childhood was not regarded as presenting differences from disease in adult life of sufficient importance to call for special knowledge. Dr. Rotch began his career as a general practitioner, but was soon attracted by the interest of the problems encountered in the struggle with disease as

manifested in early life. The earlier days of his work were marked by his earnest endeavors to separate his chosen specialty from the domain of the general practitioner, and to point out to his professional brethren the need of special knowledge in this field. His field of work was one in which a high death-rate had come to be taken for granted. Gradually, as time progressed and medical practice became more defined, pediatrics came to be recognized as a specialty, and Dr. Rotch was able to concentrate his energies on his chosen problems.

There was at this time little special teaching in pediatrics in the Harvard Medical School. In 1888 the University established a Professorship for the Diseases of Children especially for Dr. Rotch, his title being later changed to Professor of Pediatrics.

I shall assume that the work of Dr. Rotch as a teacher, writer, and organizer is sufficiently known to this audience to require but brief mention here. Among all his activities, I think he will always be known by his contributions to the subject of infant feeding. When he began to study and write upon this subject, our knowledge and practice were in a most chaotic state, and to him must be given the credit for the earliest exact work on feeding which was done in this country. He was the originator of the Percentage Method of Feeding, which, while at first opposed by some, has finally come to be accepted by practically all pediatricists. I believe it is not an over-statement to say that he was the founder of modern scientific infant feeding.

The two great interests of Dr. Rotch's life were the development and organization of the pediatric department of the medical school, and the development and completion of the Infants' Hospital. He displayed marked ability as an organizer; and those of us whom he drew around him could not but catch his enthusiasm. We never ceased to wonder at his energy, and his capacity for the regulation of the smallest details. It was difficult to help him in his work, for he wanted to do everything and attend to everything himself. He never laid aside these interests, even in his last illness, and indeed died in harness. During the last days of his life, it was in vain we tried to persuade him to leave the management of things to others. Every day I had to give him a full account of "how everything was going," and it was difficult to persuade him that anything had been attended to without him. Only a few days before his death, at a time when we believed that at last he had resigned the management of the matters which interested him, and when any effort of mind or body seemed impossible, he insisted on telephoning from his bed to Dr. Morse about some small matter of departmental routine.

Dr. Rotch, early in his career, became convinced that the treatment of disease in early life was so distinct from that of disease in adults, that it could best be carried out in a hospital devoted exclusively to children. Later he found

a marked difference in the hospital requirements of young infants and those of older children. The problem of nutrition in infancy was found to be of such great importance, that the nursing requirements for the carrying out of treatment are entirely different at that age, and that the conditions which a hospital for infants must meet are entirely different from those which prevail in a children's hospital. This led to the establishment of the Infants' Hospital, in its modest quarters on Blossom Street. It was the first hospital in this country to admit patients restricted to the first two years of life. Only those who have worked at the old Infants' Hospital can realize the enormous life-saving work which was carried out there under very inadequate conditions.

In 1902, Dr. Rotch's life was saddened by the death of his only son, who had just graduated from the University, and begun a business career. Tom Rotch, as the boy was known to his friends, had not been strong as a baby, and had indeed presented one of those very problems in which Dr. Rotch later took so strong an interest. I know that it was the study of his early life that first led Dr. Rotch's interest into the field in which he later attained so great a reputation. While Dr. Rotch never recovered from the blow of his boy's death, his finest qualities were never better shown than by the way in which he bore this bereavement. He surrounded himself with the college friends of his son, and threw himself with all the more energy into his professional work.

Dr. Rotch had many friends, and was greatly beloved by his patients. In the outburst of sympathy for him in his loss, a fund was given by his friends for the erection of a new infants' hospital as a memorial to his son. This movement has just ended in the completion of the new building near the Medical School.

Dr. Rotch had much to do with the development and administration of the Children's Hospital, but during the last years of his life it was in the new Infants' Hospital that his interests were centered. His plans were always far-reaching, he looked far ahead into the future. He possessed the imagination which could foresee the results of their fulfilment. I believe he was one of the first, if not the first, to foresee the group of buildings now surrounding the Medical School. He talked to me of this idea long before I ever heard it mentioned anywhere else. The one dream of his life was to see the new Infants' Hospital completed and opened, and to deliver the first lecture in its lecture room. After this his plan was to retire from all his other professional activities, and to devote the rest of his life to literary work, and to the management of the new hospital. It was in the director's room of the new building that he intended to pass his remaining years.

It is rather tragic that his hopes failed of fulfilment at the last moment. During his last years he overworked continually. The severe

strain imposed by the hopeless illness of his wife for four years was more than even his strong constitution could bear. He felt his strength failing, but did not say a word of this to anyone. To our anxious inquiries he always replied that he was feeling better. He concentrated all his energies on finishing his work, on seeing the new hospital completed, and on perfecting the organizing of his teaching department. The first acute breakdown occurred early in February, but he was soon up, and no one could restrain him from going to work again. His final illness began on February 24th, and a collapse on February 28th showed his condition to be hopeless. The new hospital received its first patient on March 3d, six days before his death. Although he failed to see the hospital open, I believe he was very happy at the last, for the building was so nearly completed that he had begun to realize the satisfaction of seeing his hopes fulfilled.

III.

CHARLES PICKERING PUTNAM, M.D.

BY WILLIAM BRADFORD ROBBINS, M.D., BOSTON,

DR. CHARLES PICKERING PUTNAM has taken a prominent part in medicine in Boston in the past forty years. During this time we all have come in contact with him in some way or other. We remember him for some particular trait or act or deed. He will be generally known for the great work which he did, in what might be called *social* medicine. His life work may be said to have been to uplift the human race, to make his fellowbeings happier and better in mind and body. He laid down his life for his friends, and his friends were *us* all.

He believed that the greatest good could be accomplished by organization, and therefore we find him a leader in many societies, which have to deal with social and moral uplift. He was one of the founders of the Boston Society for the Relief of Destitute Mothers and Infants, and was its president from 1904 until his death. Since 1875 he had been connected with the Massachusetts Infant Asylum as physician, and for twelve years was president of the board of trustees of that institution. He was one of the earliest to become interested in the Associated Charities, and it was largely through his efforts that the society is now able to accomplish so much.

He was very active in the reorganization of the Boston pauper institutions. To quote from Mr. Joseph Lee's article:

"From 1892 to 1897 Dr. Putnam took a leading part in the very important movement for the reorganization of the Boston institutions for the care of prisoners, of the poor, and of poor, neglected and delinquent children, being on the

special committee appointed by Mayor Matthews in 1892, chairman of the board of visitors of 1893-94, chairman of the standing committee on pauper institutions of the advisory board appointed by Mayor Quincy in 1896, a steady fighter for the reorganization bill of 1897. When the new system of separate unpaid boards of trustees was established he was appointed a member of the board of children's institutions, and was its chairman from 1902 to 1911, performing in that capacity a great and harassing though invisible and unappreciated, service to his fellow-citizens.

"Dr. Putnam was among the earliest supporters of Dr. James R. Chadwick in founding the Boston Medical Library, of which he was an original member in 1875, an incorporator in 1877, and which he served upon important committees until his death. He helped to organize and carry on the Directory of Nurses. He was active in the campaign against tuberculosis and a director of the Mental Hygiene Association. He was one of the first to take up broad social questions from the legislative end, was the first experienced charity worker to enlist in the Massachusetts Civic League, and helped secure the establishment of the State Board of Insanity, the taking over of the Boston Insane Hospital by the state, medical inspection in the public schools of Massachusetts, playgrounds, better probation service, the juvenile court, better laws dealing with tramps, with drunkards, and many others."

Besides all these societies he was affiliated with many medical societies. He was president of the American Pediatric Society in 1898.

During all these years he attended assiduously to a large practise. He seemed never to tire, and no matter what time of the day or night he was called, he had always the same quiet thoughtful, calm, self-contained manner. No matter how busy he was, he seemed to have unlimited time to spend on the details of kindness, the little kindnesses which most leave undone or despise. He never appeared to be in a hurry, and left the impression that this visit was the only one he had to make. He seemed to know by instinct what would comfort most. I have seen him sit down on the floor of the nursery and work over some complicated toy for an hour at a time, so that in the morning when the sick child awoke he would find his toy all fixed and ready to be played with.

How much he loved the children was shown by the way the children loved him.

He had a great faith in therapeutics and his choice of drugs was adapted to suit the individual case with rare skill. He respected the idiosyncrasies of his patients, about drugs or other forms of treatment, but he was very firm when he knew that a certain course of treatment was essential. He was constantly studying to increase his knowledge of new drugs or new combinations of old drugs, which might give better results, or the same results in a less obnoxious manner.

His prescription books are filled with prescriptions which show his mastery of therapeutics.

With his keen sense of humor and kind heart he frequently accomplished what no medicine would do. When the case required some mechanical assistance, he was never at a loss. With the most crude home-made materials he would construct a complex apparatus. He was a born mechanic, and loved to work in his workshop over some useful article, seldom for himself. His office contained many simple and complicated devices to relieve pain and correct deformities. When in his last illness it caused him pain to lie down, he had a wonderful apparatus rigged up under his direction to support himself, an apparatus which he had devised to help one of his friends in a like predicament. I think that if he had had more time for the training and his eyesight had been better, he would have taken up surgery, he was so skilful with his hands.

One of the most striking of Dr. Putnam's traits was his pertinacity. No matter how difficult or apparently impossible the task seemed, he would never give up or be discouraged. I shall never forget the care and patience with which he worked over the case of a young mother who was bent on nursing her child. With an earlier baby the nursing had been intercepted by a breast abscess, and it appeared as if it were impossible to prevent the same thing happening again. The mother was disconsolate. He said that he believed that it was safe to go on nursing. He tried breast bandages, shields of all kinds, made an improved breast pump, and finally succeeded in quieting the inflammation and the nursing went on.

His resources seemed endless either for a broken toy or a broken heart.

Not content with giving so much time to the poor and the needy through his societies, he took the problems of all who came to him as his own. Rich or poor, their problems were his. He believed in organized charity but he gave his life to his own personal charity. The friend to the friendless and helpless, his office was filled with those who needed help or advice, for they knew that they would get an honest opinion, a kind word, a true friend, a helping hand if they came to him.

During his last illness I saw some of the cases that came to his office looking for their friend. I found a young girl whom he had talked to daily, for weeks, to encourage her in the work that she was doing; an old woman whose pills had given out, who said she came for more pills, but who really came to see him; young girls from his societies, who had practically no other friend in the world; and the tired mother of some six or eight children, who came to ask advice about her family troubles. He had seen them all for love.

He was young in his heart, and in his mind, and in his body. He often joked with me because I called a person old. "Why," he said

"they're not much older than I am, and I'm not old!"

He was by inheritance a gentleman and a gentle-man, in the truest sense of the word, he lived. What his forbears have done for Boston is well known.

All that he did we cannot yet fully realize. Descended from great physicians on both sides of his family, he inherited a love of medicine, and a wonderfully keen medical sense, and he also inherited from them a love of service to the people.

Dr. Putnam will be known for his great work for social progress and social medicine, but we shall remember him for his persistent self-sacrifice in his daily work.

Thoughtful of his patients to the last, it was with difficulty that we could get him to discontinue the use of two telephones in his sick room. He knew that he could not get better, but there were few if any, who guessed it, when they heard his cheering words to them.

His last thought was for those he loved—his fellowmen.

Original Articles.

COMPENSATORY EXERCISES AS AN AID IN THE TREATMENT OF LOCOMOTOR ATAXIA.

BY H. M. SWIFT, M.D., PORTLAND, ME.

IN considering the treatment of locomotor ataxia it should be remembered that we are dealing with a clinical condition resulting chiefly from a degenerative lesion of the nervous system. The seat of this degeneration is in the fibres of the posterior nerve roots and their prolongations into the spinal cord, the regions of the cord which are affected most strikingly being the posterior columns, perhaps more familiarly known as the columns of Goll and Burdach.

The principal function of the nerve fibres which pass upward in the posterior columns is the transmission of impulses which convey the sense of position to the brain and lower centres. So, if, for example, the fibres in the posterior columns which transmit these sensory impulses from the legs are destroyed, the patient is unable with closed eyes to know accurately the position in which the limb or segment of limb is placed if held flexed or extended at any of the joints.

The loss of position sense in ataxic cases may be often easily demonstrated by bending the great toe up or down and asking the patient to tell with closed eyes the position in which it is held. Usually if much ataxia is present this cannot be done correctly, although in the early

stages before much ataxia has developed the test may be negative.

Inasmuch as in locomotor ataxia the motor pathways are generally intact, there may be no actual loss of power, and strictly voluntary movements can be carried out. It must be understood, however, that no exact movement is entirely voluntary or consists merely in the contraction of one set of muscles, but that exactness is made possible only through the regulatory or inhibitory influences of co-working or opposing muscles whereby the muscles concerned are made to work in harmony and the component movement rendered steady.

This regulatory action is largely involuntary and is made possible by the fact that afferent impulses or messages are being continually sent in from the joints to the central nervous system, which inform the spinal regulatory or coördinating centres of the exact position of the limb during the various periods of time covered by any of its movements, while the centre in turn sends back regulatory motor impulses to the different sets of muscles involved so that the total result is a coördinated movement. But if now, as in locomotor ataxia, the pathways for position sense are destroyed, then the production of regulatory impulses is prevented or at least impaired, and the result is unsteadiness or overaction of muscular movement—in other words, incoördination.

To illustrate what is meant by the regulatory influence of associated movements let us consider the act of standing.

In normal standing the knees are not held ordinarily in a position of stiff and complete extension, but rather slightly flexed so that unless prevented there would be a tendency for them to sink down and give way under the body weight. Normally this giving way is prevented by the fact that whenever the knees tend to bend under the body weight, unconscious sensory impulses are sent in to the coördinating centres of the cord, indicating that a faulty position is being assumed, and are there converted into motor regulatory impulses, which in turn cause appropriate opposing contractions of the quadriceps. In this way the exact amount of extension requisite to normal standing is maintained. But when, as in advanced tabes, this regulatory function is interfered with and the tendency to sink down under the body weight is unopposed, the standing position is not so easily maintained and the patient must resort usually to rigid hyper-extension at the knees in order to prevent them from giving way.

Again, in walking the same principle is involved. Walking is made up of a number of nicely adjusted component movements. In describing this act the legs may be designated conveniently as the supporting leg and the swinging leg. At the beginning of a step one leg is swung forward, while the body weight is supported by the other leg; but soon after the

swinging movement is begun the body weight is transferred from the supporting leg to the swinging leg, the transference being complete as soon as the swinging leg is firmly fixed upon the floor.

This transference of the body weight from one leg to the other is brought about by the plantar flexion of the foot of the supporting leg (now remaining in the rear) which rising in this manner throws forward the body weight upon the leg in front. The latter in its turn now becomes the supporting leg. The other leg in the rear is then ready for the forward swing which goes to make the next step.

In order that the act of walking be properly performed these various movements must be executed with perfect steadiness and accuracy. For example, when the weight is thrown forward from one leg to the other, it is necessary that the foot be raised exactly to the proper position and no further, because if the heel is raised too high the body weight is brought forward so far that the person loses his balance and tends to fall over. Normally this exaggerated movement is prevented because through the afferent nervous impulses one is made aware unconsciously of the exact position of the ankle joint during each instant of the act, and when the plantar flexion has been sufficiently carried out a message to that effect is sent to the cord along the fibres of position sense, which is there transformed into motor impulses to the opposing muscles (peroneals, tibialis anticus, and extensor longus digitorum). In this way the movement is kept within proper bounds. When, as in locomotor ataxia, this sensory pathway is destroyed, such a message cannot be sent to the muscles which normally would inhibit too great a plantar flexion, and when this movement is attempted the result is an exaggerated flexion with accompanying difficulties of locomotion, instead of a regulated flexion, as in normal walking. In locomotor ataxia the ability to transfer properly the body weight from one leg to the other is often lost and is particularly difficult to re-acquire.

Ataxia is thus seen to be dependent upon degenerative changes in the nerve tissue whereby the position sense is destroyed or impaired. It is probable, however, that associated with these degenerative changes is sometimes a more active irritative or inflammatory process in the spinal meninges, which gives rise to the pains and various crises by causing a constriction about the posterior roots as they pass through the pia enveloping the cord.

While it can hardly be definitely proven that the pains and crises are caused by irritation of the posterior roots by an acute process, therapeutic evidence of this is suggested by the fact that particularly in those cases with predominating pains the administration of salvarsan is most likely to prove of value. It is now considered proper by many to give salvarsan in all

cases of tabes, and there would seem to be no doubt that a certain proportion of these cases are improved and in others the process at least checked. But we cannot hope that salvarsan or any other medicinal agent will bring about the restoration of nerve tissue, which has actually undergone degeneration, any more than we can expect that a kidney which is the seat of a chronic nephritis can be made normal again.*

Now let us suppose a case in which salvarsan has been given, the acute process checked with relief of pains, but in which a considerable degree of ataxia still remains. Can anything more be done? It seems to me that the situation here is not unlike that in the case of the degenerated kidney; for in the latter condition we try to bring about compensation by making the skin and bowels take up a part of the work of elimination, and on somewhat the same principle in locomotor ataxia we may utilize the intact sensory fibres of other regions of the cord to take up the work which normally belongs to the posterior columns. Here, however, the analogy between the degenerated nerve tracts and the degenerated kidney ends, inasmuch as in the case of the diseased kidney we have in the skin and bowels compensatory agents ready at hand, while in the tabetic the compensatory function must be developed slowly by a process of re-education.

The method employed to bring about this improvement in function consists in the use of compensatory exercise treatment devised by Frankel, of Heiden, in 1882, and later modified by Foerster, of Breslau, the aim of which is to overcome the ataxia by training the eye and equilibrium sense to compensate for the lost position sense, and eventually to redevelop the position sense itself by increasing the capacity of the fibres in the posterior columns which have escaped degeneration.

In the original Frankel exercises more or less apparatus is used and the patient practices various movements requiring great exactitude in execution, such as putting the feet into small depressions in a board or touching in succession with the feet swinging wooden balls, the idea being that the coördinating ability acquired in this way will increase the efficiency of the whole motor system, including of course the acts of standing, walking, etc. It has been found, however, that improvement in standing and walking is not particularly hastened by these complicated exercises, but that the tabetic learns walking best by practicing walking, the standing by practicing standing. The employment of those other refinements is thus unnecessary.

In the Foerster modifications these more elaborate measures are omitted, and, instead, the motor disturbances seen in walking, standing, etc., are analyzed into their component parts

and the patient taught to correct each of these elemental inaccuracies by a process of voluntary attention.

I shall now attempt to describe some of the details of treatment.

WALKING.

By way of preliminary I would say that my analysis of the tabetic gait is not intended to be complete and that I have chosen merely four important abnormalities in order to illustrate the methods used for correcting them. These abnormalities are:—

1. *Hyperextension at knees.*
2. *Overaction of swinging leg with exaggerated dorsal flexion of foot.*
3. *Lack of plantar flexion of foot of supporting leg to throw the body weight forward.*
4. *Faulty position of hips with corresponding faulty posture of trunk.*

These defects vary considerably in different cases.

Hyperextension at knees. In normal walking and standing the legs are held in a position of slight flexion at the knees. In this position there is naturally a tendency to sink down under the body weight which is corrected by means of unconscious sensory impulses, which are transformed into reflex motor impulses and cause appropriate contractions of the quadriceps muscles, thereby maintaining the necessary opposing extension. In this way, by the unconscious interplay between the actions of the quadriceps and hamstring groups the exact amount of bending at the knees is maintained which is requisite to the normal walk. In tabes, on the other hand, owing to this lack of finer adjustment by means of the position sense, the tendency for the legs to give way can be prevented only by keeping them in a state of stiff and complete extension. In other words, the patient walks stiff-legged, using his legs somewhat as a pair of pegs after the manner of an automaton.

This adjustment is to a certain extent conservative, and it may be inadvisable to try to correct it during the earlier stages of treatment. Later the patient may practice slowly the movement of sinking and rising at the knees, always watching himself carefully and exerting himself most strenuously to avoid all jerks. This exercise is usually very fatiguing and at first it may be necessary partially to support the patient. Standing also may be practiced with the knees in a partially flexed position.

Further measures tending to correct this defect are included under other exercises mentioned later.

Overaction of the swinging leg with dorsal flexion of foot. Owing to the lack of inhibition on the part of the opposing muscles, the leg is swung forward with a jerk. The foot is held stiffly in a position of dorsal flexion and the heel strikes the floor with a thump.

* The Wassermann reaction and the examination of the spinal fluid are valuable aids in judging as to the probable efficiency of salvarsan treatment. For details as to this see papers by Spooner and Ayer, *Boston Med. and Surg. Jour.*, Vol. clxx, No. 13.

Also, "Serology of Nervous and Mental Diseases," Kaplan.

To correct these defects the patient practises walking with the leg sharply flexed at the knee and with the foot pointing downward in exaggerated plantar flexion, thus touching the floor first with the toe and then coming down gradually on the whole foot. The proper motion in this exercise resembles that of the fore legs of a horse drawing a load up hill. The exercise is to be practiced slowly, aiming at perfect steadiness and carefully trying to avoid jerkiness. At the beginning of the movement the foot often leaves the floor with a little twist and this tendency should be perseveringly combated. In the majority of cases the foot is usually best held pointing directly forward, thereby correcting the frequent tendency toward extreme outward rotation. Whatever position is chosen for the foot it should not be allowed to deviate from that line.

Exactitude may be aided if chalk marks or painted spots are made upon the floor corresponding to the shape of the foot and in the exercises the toe be put down exactly upon the indicated places, the patient always endeavoring to correct with constant and painstaking attention any tendency of the foot to swerve.

Lack of plantar flexion of supporting leg to throw the body weight forward. Normally in the act of taking a step the body weight is thrown forward by the rising up of the rear supporting foot into a position of plantar flexion. In tabes the foot of the supporting leg is not raised but tends rather to be merely pushed along, while the upper part of the body, instead of being thrown forward, inclines to fall backward. This defect is to be overcome by having the patient practice to throw the body weight forward by means of careful attention to the movements of the supporting foot.

In the exercises previously described the defects are corrected by training the eyes to watch the various movements and to correct aberrations of movement as they are seen to occur. In the next defect of which I shall speak compensation is effected not alone by visual means, but also by the training of the equilibrium sense.

Faulty position of hips with corresponding faulty position of whole trunk. In the tabetic the hips tend to protrude on the side of the supporting leg which is the opposite of the normal walk, and the balance is maintained with difficulty when the swinging leg is in the air. There is thus a tendency to fall over toward the side away from the supporting leg, which the patient naturally tries to overcome by walking with a broad base and by turning the feet outward in an extreme degree. The problem here becomes one of training him to walk while keeping the hip held in on the side of the supporting leg, because when this is done the trunk bends over away from the unsupported side and the equilibrium is more easily maintained. The attainment of this correct position may be aided at first by the physician's pushing in against

the trochanters of the patient as he walks. Another defect in advanced cases is the tendency of the trunk to bend over forward, which is to be corrected by keeping the buttocks forward and this again may be aided by pushes or slight taps against the sacral region from behind. By such measures the patient may gradually learn to hold the hips in the proper position.

The tendency to fall in any direction may be in part corrected by developing the equilibrium sense so that it learns to respond more quickly than normally. Have the patient notice his tendency to topple over can be overcome in a measure by quickly pushing out the pelvis along the line in which he feels himself falling. Associated with this movement is a compensatory bending of the upper part of the trunk to the other side so that the balance may also be maintained by simply leaning in the opposite direction. This is, of course, the same principle by which the balance is maintained in the normal individual. Normally this maintenance of equilibrium is involuntary and conditioned by unconscious sensory impulses. In tabes these involuntary nervous processes must be supplemented by balancing motions which are more strictly voluntary and may be made to act as compensatory to the lost position sense.

It may have been noted that in some of the exercises the legs are in a position of over-correction, as when, for example, the swinging leg is held strongly flexed at the knee with the foot pointing sharply downward, thus over-correcting the natural tabetic tendency to walk with legs stiffly extended and with feet turned upward. The aim of this over-correcture is to obtain as a total result an approach to a normal walk in which the position of the limb is midway between the extreme position naturally adopted by the tabetic, and the extreme position of the exercise.

If necessary, the exercises may be practiced by aid of the support of another person; then successively with sticks, without sticks; and finally with closed eyes, the difficulty of the task being increased as fast as the progress of the case permits.

In the foregoing description only some of the more typical abnormalities have been considered the object being rather to illustrate a principle than to give an exhaustive description of all the exercise movements. The physician should always analyze carefully the defects of a given case and apply corrective procedures suited to the individual. With a trifling amount of ingenuity appropriate exercises may be easily devised. Care as to detail is imperative, and during the practice the attention of the patient is to be directed to the slightest inaccuracies.

After a certain amount of improvement in walking has been attained, more difficult co-ordinated acts may be tried, such as going up stairs (the body weight being kept well forward), then running, dancing and the like, the

aim not being to acquire excellence in such accomplishments, but only to render easier the act of walking.

These exercises may be often advantageously combined with some of the original Frankel movements which are especially useful as a preliminary if the patient is bed ridden. In practicing them the patient rests in a half reclining position on a firm couch with the back against a support, so that he may watch all parts of the legs.

A description of the movements may be found in many text books, but for convenience some of them are given below:

Slowly raise and lower whole leg from table carefully avoiding all rotation of foot.

Slide foot back and forth in flexing knee. The heel rests upon the table and the foot is held in a position of plantar flexion.

Same as above until knee is flexed, then the foot is raised from the table and the leg extended. Attention that movement is without jerkiness, that foot remains flexed, and that the leg does not rotate.

Place heel upon knee of other leg, then half way between knee and ankle, upon ankle, upon great toe. Same precautions as above.

Slide heel of one foot up and down upon the tibia of other leg, keeping foot in plantar flexion and avoiding rotation.

All these exercises are to be practiced first with eyes open, then with eyes closed.

For cervical tabes with resulting incoördination of the hands appropriate exercises have also been devised.

STANDING.

In cases with far advanced ataxia standing is impossible, because the patient is unable to maintain extension either at the knees or at the hips. As a consequence of this the knees tend to give way and the trunk collapses over forward so that the person doubles up like a knife. In ordinary cases standing is possible, but rendered so only by rigid over-extension of the joints in question. Thus the trunk is bent over backward with corresponding protuberance of the abdomen, while the knee-joint is held stiffly hyper-extended. This hyper-extension of the knees and hips is in a measure conservative and in severe ataxia the patient may be allowed to retain this position during the early stages of treatment, inasmuch as the acquirement of the ability to stand in any manner whatsoever is a distinct gain and at the beginning this may be accomplished only with the maintenance of rigid over-extension, even this sometimes being impossible without the aid of support on both sides. While thus supported the patient must always be on the alert to combat the tendency to collapse by making voluntary extension of the muscles about the knees and pelvis, to do which it is necessary that he watch attentively the parts and make appropriate corrective movements

whenever he sees himself giving way. Later as he becomes more and more proficient, the support should be gradually diminished and replaced by canes until eventually he becomes able to stand alone.

Where the ataxia is less extreme and the patient already able to stand without support the problem becomes one of tempering the rigidity of the extension by the cultivation of a certain degree of flexion of the opposing muscles. In such cases standing is to be practiced in a normally erect position, which will be somewhere between the backward over-extension of the trunk and the forward collapse. The knees are to be held slightly flexed as in the normal.

As in walking, so in standing, the equilibrium sense must also be developed and the patient learn to prevent himself from falling by pushing out the pelvis in the direction toward which he feels himself swaying. The use of the equilibrium sense is particularly valuable when he comes to practice standing with closed eyes.

After the patient has learned to stand reasonably well without support of any kind the difficulty of the exercise should be increased by having him stand with the feet close together and then on one foot. Finally all the exercises are to be practiced with closed eyes, the aim being to rely less and less upon the visual and more and more upon the equilibrium sense.

At first all exercises are to be practiced for only short periods of time, with frequent intervals of rest, because, as should always be borne in mind, the tabetic may have no subjective feeling of fatigue and in his early enthusiasm easily overdo and carry the work to a point injurious to himself. To prevent this the physician should watch the pulse and if it becomes rapid at any time have the patient rest.

At the beginning of treatment half hour seances, including intervals of rest, are ordinarily long enough. Later the exercise periods may be lengthened. Patients often wish to practice at home and this may be permitted, provided they can be made to understand that the exercises may actually retard progress if carried to the point of fatigue. For home work it is perhaps safest to prescribe periods of five to ten minutes' practice, repeated after long intervals several times during the day. As a matter of fact, home practice does not hasten improvement as much as might be expected. To be most beneficial the exercises should be done under supervision, because slight inaccuracies requiring correction continually arise, which escape the notice of the patient.

To be of marked benefit the treatment must be continued over long periods of time, varying from six months to a year. The method is not suitable for all tabetics, the more common contra-indications being optic atrophy, a heart lesion, poor general physical condition, and frequent pains or crises. Nor can one say absolutely whether the exercises will be helpful in

a given case. The fairest way perhaps is to propose to the prospective patient a few weeks' trial and if at the end of that time he is dissatisfied with his progress he may discontinue, although usually if the treatment is carried out even for this short period he becomes interested and willing to keep on.

In conclusion I would repeat that the compensatory exercise treatment is not suited to all cases of locomotor ataxia, and is to be combined with other measures directed to the improvement of the general health and often with anti-syphilitic medication.

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DIABETES AND SURGERY.

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THIS paper has for its object a brief summary of our present-day knowledge in regard to glycosuria in its relation to surgery.

1. In what type of cases must we avoid surgery in diabetics?

2. What is the probable mortality from operations on diabetics?

3. Is the amount of sugar of prognostic value?

The statement made in most text-books that all but emergency operations should be avoided on diabetics and that there should be a very guarded prognosis, does not seem in the light of present surgical technic to be a warning that needs as serious attention as formerly.

The only way to reach a definite conclusion is to study the results that have been obtained after operations on diabetics and the causes of failure, in order to define the limits of surgical interference.

It is very often difficult or impossible to distinguish between temporary or non-diabetic glycosuria and true diabetes, this being notably so in the presence of surgical complications, and should we take the presence of sugar as an indication of the existence of diabetes in all cases there would be many patients who would die unrelieved of their surgical necessity.

Verneuil in 1884 said, "I hardly admit the separation, no one so far having shown clearly where glycosuria ends and diabetes begins. I have, in light of present-day facts, decided as a surgeon to discard the existence of an arbitrary division which does not present any practical utility. From the surgical point of view the presence of glucose in the urine, whatever its amount, is always a serious fact."

The classification of Smith and Durham (Guy's Hospital Report, Vol. xlix, pp. 343-432) seems to more nearly approach completeness and practicability than others hithertofore given. This (somewhat modified) is as follows: Our cases can be divided and more accurately studied if we class them as:—

1. Those cases in which glycosuria is caused by the surgical lesion.

2. Those cases in which it causes the surgical condition.

3. Those cases in which the two are independent and do not influence each other.

4. Those cases in which glycosuria is a harmful factor and adds to the danger of the already present disease or injury.

We must bear in mind in analyzing these cases that glycosuria may be transitory, i.e. due to the use of drugs such as morphia, or it may be the beginning of a true diabetes, the one passing imperceptibly into the other.

Class 1. Glycosuria is not uncommonly caused by the surgical lesion in cases of injury and sepsis. The amount of sugar is generally small (1 to 2.5%) and usually transitory. In ulcerated new growths the glycosuria is probably secondary to the sepsis present. Smith and Durham (*vide* above) instance several cases in which a gradual disappearance of sugar took place after the removal of a sloughing malignant growth. There are many instance in the literature in which glycosuria cleared up subsequent to operations for appendicitis, pyosalpinx, strangulated hernia, ovarian tumors, traumatic gangrene, etc. In such cases, therefore, surgery is indicated and demanded both in light of results obtained and the nature of the surgical lesion.

It may be argued that it is impossible to tell before operation whether the condition is one of transient glycosuria, dependent on the surgical lesion, or whether it be a true diabetes. This is a proper question to raise. But it has its answer in the surgical necessity of the cases and the low mortality statistics resulting from present-day technic.

Class 2. Phillips (*Lancet*, May 10-17, 1902) has written the most careful recent review of the cases reported in the literature on this subject. He thinks it doubtful whether diabetes can directly cause any lesion requiring surgical treatment except balanoposthitis and cataract. His belief in regard to so-called diabetic gangrene is that it is rather a gangrene occurring in a diabetic subject, the influence of the diabetes being indirect through the coincident arteriosclerosis or nerve degeneration, these being the result of the constitutional affection. Carbuncle, he believes, is to be regarded in the same light.

Should we differ from this opinion, we may regard diabetes as a direct cause of the surgical condition and therefore demanding surgical intervention. Mortality from operation in this class of cases is notably high but has been greatly lowered in recent years by the use of

newer forms of anesthesia, such as nitrous oxide and oxygen, local and spinal anesthesia to replace the more toxic chloroform and ether, rapid aseptic technic and careful pre-operative treatment aimed at the reduction of sugar.

Exact mortality figures in this type of cases are not at present available but it is possible to state that the risk of operation is justifiable provided the general condition of the patient and the diabetes can be first improved by preliminary treatment.

Class 3. This from the point of view of surgical prognosis and treatment is in a way the most important group, as it contains new growths, fractures and other injuries, such as genital injuries following childbirth, occurring in diabetics, and especially because the existence of the diabetes may at the time of the surgical emergency be unknown, as the disease may be intermittent.

Phillips has analyzed the results of operations on the face and mouth for malignancy in the presence of diabetes, and finds out of 16 cases 11 recovered, or 68.75% recoveries and 31.25% mortality. Of purely mouth and lip cases, 9 out of 12, or 75% recoveries.

In operations on the breast, of 15 cases 13, or 86.6%, recovered and 13.4% died. Both fatal cases died as a result of sepsis; one of erysipelas and one of sepsis in the drainage tract. In operations on the female generative organs, out of 24 operations performed on 23 patients there are five deaths, or a percentage of 76.25 patients recovering, and of successful operations 79.16%. In purely plastic operations the mortality was practically nil.

The results reported in operations on the male generative organs are very meagre. Of 6 operations on 5 patients, 3 died, giving an operative mortality of 50%. No special precautions had been taken in two cases against coma and the other was in the removal of a septic sloughing penis. Mortality statistics in this class of cases are probably much better than the figures indicate.

When we consider abdominal operations including hernia, appendicitis, colostomy for malignant disease, we find in 15 operations on 15 patients, 11 recoveries or 73.3%. This is a low percentage of recoveries as three of the cases in this series were practically moribund when operated. Three pancreatic cysts in diabetics have been drained, the patients recovering from the immediate effects of operation, but dying subsequently of diabetes some months later.

In operations on the extremities for aneurysm, neoplasm, crush, fracture, etc., 7 cases showed 3 deaths or 57.1% recoveries, 9 operations being done, gives a percentage of successful operations of 66.6.

The discussion of the question of the non-union of fractures in diabetics is an interesting one. Text-books teach non or delayed union to be expected. Smith and Durham report 5 cases of

non and delayed union in 9 cases, the 4 other cases having perfect union within normal time. Phillips cites numerous cases of perfect union and believes that considerable doubt should be expressed that non-union is more common. Van Norden's (*Pathologie des Stoffwechsels*, Berlin, 1893, s. 416) observation on the decrease of lime salts in diabetics would indicate that it was advisable to administer the carbonate of lime to diabetics suffering fractures.

It seems evident, therefore, that we may generally expect union of fractures in diabetics, especially if we take the precaution to administer lime salts during convalescence.

Class 4. The question of gangrene and the results of amputation for that condition are interesting. It is beginning, at least, to be accepted today that diabetes is rarely the direct cause of gangrene, but rather it is to be considered secondary to arteriosclerosis in diabetics. The term diabetic gangrene is usually applied to gangrene of the lower extremities. A vast amount of literature has been published on this subject and the subject is further complicated by the fact that ordinarily senile gangrene is often accompanied by glycosuria. The best treatise on this subject is by Gussenbauer (*Über die Behandlung der Gangrän der Diabetes Mellitus. Wiener Klinische Wochenschrift*, 1895, Band xlii, s. 487). He advocates diet and general treatment first. The condition of the arteries on both sides should be carefully investigated. If the pulse be distinctly present in the anterior and posterior tibial and in the dorsalis pedis, local removal of the diseased parts will suffice. If, however, the pulse be absent there, but be well marked in the popliteal, amputation below the knee may be performed provided the gangrene has not spread beyond the dorsum of the foot and that the leg is free from phlebitis and lymphangitis. Otherwise, amputation must be done through the thigh. If in doubt, amputation should always be done above the knee. St. Bartholomew's Hospital Reports for 1884-1899 emphasize the importance of observing the above directions of Gussenbauer, for out of 8 cases amputated for gangrene and done below the knee in the absence of dorsalis pulsation 6, or 75%, died.

Albuminuria is a serious complication. In Phillips' series all cases having it died. The presence of acetone or diacetic acid and an increase in the amount of ammonia excreted is of the utmost significance, and if these are found to be irreducible the prognosis is bad.

The old idea was prevalent that diabetes exerts an unfavorable influence on the per primam healing of wounds, but this apart from sepsis, does not necessarily follow. Perhaps it is well to make the guarded statement that with preliminary treatment of the diabetes before operation good results may be expected in the healing of wounds, but bad in untreated cases.

The question of the result of dietary treatment

before operation on prognosis is of utmost importance. In Phillips' large series there were 82.3% of recoveries in treated patients and 63.63% in untreated cases, a difference in favor of careful preliminary treatment of 18.66%. These facts are significant enough to be impressive.

Diabetes and sepsis: Extensive experiments by Bujund, Nicholas, and Karlinski show that sugar diminishes the virulence of microorganisms but increases their pus-producing properties. The factor of sepsis is therefore largely influenced by lowered vitality produced by the circulation of an abnormal amount of sugar, the presence of arteriosclerosis and of nerve degeneration producing trophic changes. Sugar directly lowers the vitality of the tissues and indirectly induces chronic vascular changes, both of which are exceedingly favorable to the development of sepsis.

Sepsis, on the other hand, may produce a temporary glycosuria, but nevertheless, this may later be found to be evidence of a diabetes which was quiescent and lighted up by the disturbance to the system incident to operation.

An interesting phase of this subject and one scarcely ever spoken of except by foreign surgeons, is otitis media and mastoid involvement in diabetes. Kuhn, Raynaud and Wolf consider that there is a special form of diabetes in which mastoid symptoms predominate. Frederick explains this by the fact that the mastoid condition is due to the existence of arteriosclerosis. Of 50 cases collected and reported by these authors, 17 developed acute mastoid disease, 11 developed slight mastoid symptoms and 22 had none at all: a percentage of 56 with mastoid involvement. This condition is not surprising when it is considered how often sepsis thrives in the presence of diabetes. Extensive deep cellulitis of the neck is liable to follow mastoid operation. This should by no means contraindicate operation however.

The following rules may be laid down in regard to operations on diabetics:—

(a) A thorough examination of the urine must be made in every case, especially for the detection of acetone and diacetic acid.

(b) The total amount of ammonia must always be estimated. No operation except of the extremest emergency should be performed if there is one gram of ammonia excreted in 24 hours, until this has been reduced to the normal amount, .75.9 gm.

(c) An operation should be postponed should there be acetone or diacetic acid, even if the amount of ammonia is normal.

(d) Much albumen in the urine is a contraindication to operation and even in small amounts is of bad prognostic import.

From a review of the foregoing data it will be seen that most of the major operations of surgery have been and can be performed with success on diabetics.

In Phillips' extensive series gathered from the literature the percentage of recoveries was 72.28, or a mortality of 27.72%. This, at first glance, seems a large mortality, but when the seriousness of the condition and the poor condition of some of the patients operated on is considered, this is not a high, but a very fair mortality. When such cases as strangulated hernia, extensive malignant disease and sepsis, which in themselves give high mortality, are omitted, we may expect a reasonably low death-rate, and general good results in this class of cases. The percentage of sugar is no criterion, as fatal results have followed from coma when sugar was temporarily absent and cases with large amounts of sugar have often recovered.

The presence of glycosuria should never deter the surgeon from performing any operation of emergency.

Other cases should not be operated in which acetone, diacetic acid and ammonia cannot be reduced by preliminary treatment.

A mortality of 20 to 30% is to be expected in this class of cases.

The use of an anesthetic other than ether and chloroform, careful dietary treatment before operation, the prevention of sepsis and rapid technique will still further reduce the mortality.

THE DIFFERENTIATION OF HUMAN AND COWS' MILK BY COLOR TESTS.

BY RICHARD S. EUSTIS, M.D., BOSTON.

At the suggestion of Dr. Fritz B. Talbot I have investigated several comparatively new reactions for the easy identification of cows' milk and human milk. Two of these depend upon the well-known fact that breast milk is normally less acid than cows' milk. The range of acidity falls within the field covered by the color changes of neutral red, which is an indicator changing from red in acid to yellow in alkaline solution. However, the normal colors of red and yellow are obscured by the white opacity of the milk, so that fresh cows' milk becomes a deep strawberry red and breast milk a duller, brownish or brick red. Furthermore, if ether is added in the proportion of five to one, the cows' milk remains deep red with the supernatant ether slightly red, while the breast milk becomes a pale orange with the ether yellow instead of red.

Moro¹ has described the first part of this test and determined that it is due to the reaction of the milk. For instance, fresh breast milk kept at room temperature gradually becomes acid. Before any change can be detected by smell or taste, the color with neutral red loses its brownish hue and soon becomes a strawberry red, indistinguishable from that due to cows' milk. Also, as Bauer² has stated, it is no longer decol-

orized by shaking with ether. I have found this change to be a gradual one with no definite end point. Bauer gives 38 hours as the limit of time which breast milk can be kept at room temperature before giving the cows' milk reaction." According to my tests the change of color had progressed far enough to be detected in 18-24 hours, and at the same time the milk acquired the power of retaining its color in the presence of ether. If the milk is kept on ice, however, the development of acidity is much slower and the change to the "cows' milk reaction" is correspondingly delayed. I have found a normal "breast milk reaction" in such milk 48 hours after the collection, and undoubtedly if greater care had been taken in the bottling it would have lasted still longer.

Neutral red, although primarily a colorimetric indicator, is also a stain, and if a drop of fresh milk is mixed with it on a slide, then warmed and examined under the microscope, the neutral fat droplets will be found colored yellow. The casein masses which appear as a result of warming, are red. The action of heat is necessary to make the stain penetrate the fat droplets, and even then many of them will remain unstained. As the milk ages the neutral fat gradually changes to fatty acid and stains red. Thus this microscopic method can be used as a check on the test tube method, but is rather too delicate as fresh drawn breast milk will show a few red droplets after it has stood one hour at room temperature. Cows' milk invariably contained some red droplets by the time it reached the laboratory.

A second stain which may be used in much the same way is Nile blue sulphate. This is not a colorimetric indicator like neutral red, but is a blue staining oxazine base, which in aqueous solution is partly oxidized into a red oxazone. The blue base does not stain neutral fat but does unite with fatty acids to form a blue soap. The red oxazone is soluble in all liquid fat, whether neutral or acid, and stains the droplets red. The blue stain of the base, however, is stronger than the red oxazone, so that fatty acids appear blue and neutral fats red. Furthermore, the red oxazone is soluble in ether and can be extracted by it from a watery solution. The oxazine base retains its blue color in the presence of ether only when the reaction is acid. If an alkali is added it turns white, only to regain its color again on the addition of an excess of acid.

Friedenthal³ in 1911 used this stain in aqueous solution to tell whether a suspected milk fat contained pure neutral fat or whether it had partly changed to fatty acid.

Bauer² in 1912 discovered a difference in behavior toward this dye of breast milk and cows' milk. One drop of a 0.25% aqueous solution of Nile blue sulphate colors 2-3 c.c. of breast milk a deep blue, but the same amount of cows' milk a lighter robin's egg blue. The two colors are very distinct and cannot be confused.

This difference in color, however, does not depend on the reaction of the milk, but solely on the percentage of casein. For instance, the green blue color of cows' milk is given equally by skimmed milk, whole milk, and 32% cream. The blue of breast milk appears also regardless of the amount of fat. But 32% cream diluted with water until the fat is 4% and the casein 0.4%, gives a blue color indistinguishable from that due to breast milk. Furthermore, if the milk is curdled by warming, the casein masses are seen under the microscope to stain green. They are much more numerous in the cows' than in breast milk.

The reaction of the milk has nothing to do with the greenish color. Thus, cows' milk made slightly alkaline with soda bicarbonate still turns green with Nile blue, and breast milk made slightly acid with diluted sulphuric acid still turns blue. The behavior of the two milks when shaken with ether is, however, entirely dependent on the reaction, as the following table shows.

	AFTER SHAKING WITH ETHER		
	NILE BLUE.	MILK	ETHER.
Soda bicarb. solution.....	Blue	Colorless	Reddish yellow
Dilute sulphuric acid.....	Blue	Blue	Pink
Fresh cow's milk.....	Greenish blue	Greenish blue	Pink
Fresh cow's milk, soda bicarb.....	Greenish blue	White	Reddish yellow
Fresh breast milk.....	Blue	Bluish white	Reddish yellow
Fresh breast milk, sulphuric acid.....	Blue	Blue	Pink

Inasmuch as the power to decolorize with ether is directly dependent on the alkalinity of the fluid, this test also may be used as a means of judging the age of breast milk. It is of about the same value as the test with neutral red, both showing a change after the milk has been kept about 24 hours at room temperature, or 48-72 hours on ice.

If a drop of fresh milk, either cows' or human, is warmed on a slide with a drop of Nile blue and examined under the microscope, no blue droplets are seen, the great majority are reddish, while a few are unstained. As the milk ages and the neutral fats begin to change to fatty acids, blue droplets appear and increase rapidly in numbers, while others take all sorts of intermediate hues between red and blue. Finally, in sour milk, all the droplets stain blue.

In practice the two tests are used as follows: to 1—2 c.c. of the milk in a test tube is added 1 drop of a 1% solution of neutral red. A reddish brown color denotes fresh, "usable" breast milk, a strawberry red cows' milk or sour breast milk. If the milk is then shaken with five times its volume of ether, a fresh breast milk will decolorize, cows' milk or sour milk will not. A precisely similar test may be carried out with $\frac{1}{4}$ % aqueous solution of Nile blue, except that breast milk colors blue no matter how old, and cows' milk greenish blue. Hence for determining whether a given milk is human or cows' the Nile blue is the better test, and is delicate enough to detect 1 part of cows' milk in 9 parts of breast milk, provided that there is known breast milk present for comparison. For detecting the age or usability of known breast milk there is little choice between the two.

With neutral red there is a change in color, and ether does not decolorize the fluid, after 18°—24° at room temperature, or 48°—72° on ice, depending upon the care with which it has been collected and bottled. Nile blue always remains blue, but loses its ability to decolorize with ether at about the same time. The microscopic test may be used as a check upon the test tube method but is not to be depended on by itself as the chemical change from neutral fat to fatty acid proceeds too irregularly.

There is a third reaction for the separation of human and cows' milk which I have also tested. Engel and Turnau⁴ in 1911 discovered a difference in the behavior of the urine of breast and of bottle-fed infants when it is warmed with a 2% silver nitrate solution. Both urines develop a white precipitate which in the urine of breast fed babies turns brown and then black. This reaction has been investigated by a number of others and is now thought to depend on the excess of chloride in cows' milk over human milk. Hence less chloride is excreted in the urine of breast-fed babies, and consequently after all the chloride available has been changed to silver chloride there is still a surplus of silver nitrate which is then acted upon by unknown

reducing substances in the urine and changed to metallic silver.

Tugendreich⁵ applied this same test directly to the milks and found a distinct difference in their behavior. If equal parts of breast milk and 2% silver nitrate solution are boiled together the mixture will take a rich café au lait color. Cows' milk gives only a dull brownish or sometimes a pale violet. This is probably also a chloride reaction depending for its color change on the action of reducing agents in the milk upon an excess of silver nitrate.

I have confirmed this reaction with a number of different breast milks and have always found their separation from cows' milk easy. Furthermore, I could detect the addition of one part of cows' milk to three parts of breast milk, provided that there was known breast milk at hand for comparison. Dilutions with smaller amounts of cows' milk gave uncertain results. As was to be expected, the age of the milk made no difference in the reaction. Hence, although Tugendreich's reaction is useful as far as it goes, it is not to be compared with either the neutral red or the Nile blue test in the amount of information to be obtained from it.

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RECOVERY FROM COCCIDIOIDAL GRANULOMA.

By S. B. WOLBACH, M.D., BOSTON.

IN response to a number of inquiries, by letter and indicated in published reviews of coccidiodal granuloma, the following brief notes are written concerning a case briefly reported by me in a study of the cultures in 1904. (*Journal of Medical Research*, Vol. XIII, No. 1.)

The case was one of coccidiodal granuloma as was proved by the pathological and cultural findings. It is hardly necessary in this day to go into the classification of this disease. Some confusion was introduced by Ricketts, (*Journal of Medical Research*, Vol. VI, No. 3). He brought together under the one heading "Oidiomycosis" a series of cases which we now know to be due to at least three different organisms, namely:—

(1) True blastomycosis or specifically, *Torula* infection. These cases have been extremely rare, and so far as I know none have been reported in man from this continent, with the possible exceptions of the two cases reported by Rust and Farnell (University of California publications in pathology, Vol. II, No. 5, June 21, 1912). Both of these cases terminated in meningitis and were classed as Oidiomycetic by the authors. From the appearance of the organisms, in the sections

sent to me and from the gelatinous character of the lesions due to zoöglia formation described by the authors, I am inclined to believe that these cases were true blastomycosis. In the absence of cultures it is of course impossible to be positive.

(2) Cutaneous and systemic blastomycosis, so-called, in which the organism reproduces in tissues by budding and in cultures has a mould-like growth. Under exceptional instances there may be growth by budding in cultures.

(3) Coccidioidal granuloma in which the organism grows in tissues by endogenous sporulation. On culture media it grows as a mould-like fungus, never by budding.

Blastomycosis, so-called, and coccidioidal granuloma have been reported almost exclusively from America. Over a hundred cases of the former have been reported. In a recent summary by W. J. McNeal and R. M. Taylor, (*Journal of Medical Research*, Vol. XXX, No. 3, 1914) 24 cases of coccidioidal granuloma have been collected. As shown by these authors the name, coccidioidal granuloma, should be preserved for this third type of infection and the name *Coccidioides immitis*, proposed for the organism by Rixford and Gilchrist, (*Johns Hopkins Hospital Reports*, 1896, No. 1) should be preserved, in spite of the fact that the organism was first believed to be a protozoön. It is still necessary to emphasize that Coccidioidal granuloma is a distinct disease and is not to be confused with the cutaneous blastomycosis and the systemic infection sometimes produced by the organism of cutaneous blastomycosis. The summary of McNeal and Taylor is so complete and so recent that nothing can be added to their list. They confirm observations of mine which have an important bearing in the classification of the parasite, namely, that the spheres in tissue develop directly from the "septate mycelial thread," *i. e.* from segments of the mycelium and not from the chlamydospores. They also for the first time succeed in obtaining, in cultures under anaerobic conditions, reproduction by endogenous sporulation.

This case, a woman, was a patient of Dr. William P. Bolles of Boston, who has supplied the following history:

"Previous to 1903 she had travelled a good deal both on and off the beaten track—Europe, India, Japan, etc. In 1901 or 1902 she made her last long trip to California and Mexico. She has had a number of unrelated and minor troubles and for many years, eczema with intense itching, scattered and frequent boils, chronic nasal catarrh (ethmoiditis) and mild but persistent rheumatism, etc. She was operated upon for strangulated hernia in 1899.

"Although she had suffered off and on from boils for some years before, she only spoke of them casually, and my attention was not called to them until 1902 when she applied to me for treatment. There was nothing peculiar about the course of the furuncles except that some did not discharge, and

others, when opened, yielded a thin necrotic material and healed slowly.

"In 1903 two slowly progressive swellings appeared on her head, one on the right side of her forehead at about the line of the hair, the other about an inch above the outer end of the left eyebrow. They were about an inch in diameter, smooth, rather flat and nearly round; at first hard-like periosteal thickening, afterwards they softened in the middle. The one on the right side especially presented a circular edge of bone around the central softening. She declined for several months to have any surgical treatment either for these or for some "boils" under her arm. The cranial nodes were not very tender or painful.

"During the summer of 1903 she was not in my care but had a prolonged x-ray treatment which did not appear to have any effect on the course of the disease. During this time the swelling on the left side of the head burst subcutaneously and its contents filtered downward into the eyelid causing much edema and closing the eye. There were two smaller foci on the scalp, one behind the ear about one-quarter of an inch in diameter.

"In January, 1904, I operated, opening and curetting out all the nodules. They consisted of necrotic tissue with brownish or grayish pus, some granular bodies like miliary tubercles and inflammatory thickening. The mass over the left eye was mostly fluid. Under the two principal swellings, those on the forehead, the bone was entirely disintegrated and the holes about an inch in diameter like trephine openings with smooth perpendicular walls reached to the dura, when the soft mass had been removed with a curette. The dura was not involved. At the same time the nodule under the left arm was curetted and thoroughly cleaned out.

"Recognizing the unusual character of my patient's trouble Dr. Wolbach, at my request, was present at the operation and obtained cultures directly from the lesions and subsequently from rabbits inoculated by Dr. F. B. Mallory to whom tissues were sent for diagnosis.

"Recovery was slow but complete.

"In March she had lobar pneumonia from which she recovered slowly. Specimens of the sputum and urine were sent to Dr. Mallory who was unable to find any organism of coccidioidal granuloma in them. Clinically the case was one of pneumococcus pneumonia. The history of the patient subsequent to operation is as follows: In December, 1911, she had an acute obstructive jaundice. I operated and removed a small calculus from the common duct. The recovery was rapid and uneventful.

"At present she is in a fair condition excepting chronic 'rheumatism'. There has been no return of lesions similar to those which proved to be coccidioidal although there have been a few furuncles which healed spontaneously. In the last few years the eczema has diminished and the furuncles have become less troublesome. She is now about seventy-five years old, is active for her age and attends to her numerous intellectual and charitable interests."

SUMMARY.

This case is one of two cases in the series of 24 recently collected by McNeal and Taylor which have recovered. The other case which recovered was localized in the leg and recovery followed amputation. It is the only case which has occurred in a woman. It is of course im-

possible to prove that the patient does not still harbor the parasite possibly in encapsulated lesions such as occur in tuberculosis. The patient unquestionably showed considerable resistance to the infection as the slow progress of the original lesion indicated. For all practical purposes she is cured, and has remained free from the disease for a period of ten years although subject to ordinary furunculosis.

Clinical Department.

THE ALCOHOLIC INJECTION OF THE INTERNAL BRANCH OF THE SUPERIOR LARYNGEAL NERVE.

By IRVING SOBOTKY, M.D., BOSTON.

Laryngologist, Long Island Hospital and Berkeley Infirmary; Assistant Laryngologist, Mt. Sinai Hospital.

A MORE distressing picture than that presented by an advanced painful tuberculous laryngitis is hard to find. The patients have such exquisite pain in attempting to swallow that they often refuse food. As tuberculous laryngitis is almost invariably secondary to phthisis, a disease where forced feeding is essential, it is easy to recognize that the lessened nutrition materially hastens the outcome.

Pain on swallowing may appear early and is present when any part of the upper aperture of the larynx is involved in the tuberculous process. Involvement of the epiglottis renders the prognosis more dubious and the symptomatic treatment less satisfactory. In such cases the swallowing of solid food causes pain, while in tuberculous affection of the arytenoid region, the swallowing of fluids gives pain.

Ulceration of the posterior wall of the epiglottis or of the arytenoid cartilages produces the most severe pain but infiltration of the muscles or perichondritis can also produce pain.

Various anodynes may be applied to the larynx to render feeding more comfortable. Cocain of 5% strength, novocain, or beta-eucaine may be applied or sprayed on the larynx shortly before meals but orthoform is more advantageous and the effect lasts longer. However, all these anodynes give only fleeting relief and the pain returns in twenty minutes to two hours after application. The blocking of the internal laryngeal nerve by injecting it with alcohol, gives the greatest and most permanent relief to these unfortunate sufferers.

The superior laryngeal nerve is the sensory nerve of the larynx. It is a branch of the pneumogastric and arises from the middle of the inferior ganglion of this nerve. It descends behind the internal carotid artery, between the middle

and the inferior constrictor muscles, and divides into the internal and external laryngeal nerves. The internal nerve penetrates the thyro-hyoid membrane and supplies the mucous membrane of the larynx. The branches of this nerve form plexuses beneath the epithelial layer of the mucous membrane, end in bodies similar to the taste buds of the mouth, and are surrounded by ganglion cells. These are fewest in the vocal cords. The internal laryngeal nerve is accessible for injection at the point where it pierces the thyro-hyoid membrane.

Technic. Place the patient in a recumbent position. Using the usual aseptic precautions, locate by pressure the tender spot where the nerve pierces the thyro-hyoid membrane, usually at the upper edge of the thyroid cartilage and one-third the distance from the outer edge. Introduce a somewhat blunted needle about one and a half cm. into this point at right angles to the skin. Should the patient cough, the needle is in the lumen of the larynx and must be withdrawn. He must be forbidden to talk or to shout and told to signify ear pain by raising his hand. If the introduction of the needle has produced no discomfort, turn it upward and outward toward the ear, and if this does not produce intense pain move the needle cautiously in various directions until the pain, referred to the ear, is produced. The instant the patient shows he is in pain, push the piston of the syringe slowly and allow only one or two drops of the 85% solution of alcohol to escape. If this augments the pain inject one to one and a half c.c.

In successful injections there is little inflammatory reaction about the site. The pain on swallowing disappears and does not return for anywhere from ten days to three months. If both right and left internal laryngeal nerves are to be injected, as is usually necessary, it is best to wait two or three days between injections.

Some laryngologists use a 1½% solution of cocaine with the alcohol, as this mixture diminishes the pain of the injections. However, patients have had so much pain they cheerfully stand the temporary discomfort of injection.

Untoward Results. If the needle is too far back, the superior thyroid or the external carotid artery may be pierced. If too low, the thyroid cartilage; if too high, the hypoglossal nerve. If the alcohol gets into the larynx it produces a local inflammation that adds to the patient's discomfort for a short time. Should the alcoholic injection fail to relieve the pain, it can be repeated in two or three days. It is perhaps needless to say that if the ulcerations are located at parts not supplied by the nerve a good result cannot be hoped for by this treatment. Mettifer reports 17 tuberculous laryngitis cases, with painful deglutition, treated by alcoholic nerve injections. All except one were free from pain within 24 hours. The duration of relief varied from five days to three months. Roth of

Bad Reichenhall, R. Hoffman of Munich and H. Horn of San Francisco report good results.

The author has not had as much success as his colleagues quoted above, but can report encouraging results only. The cases given below were picked at random, as this would seem fairer than to report only the cases where the results have been entirely favorable.

CASE 1. Mr. A., seen at the clinic of Prof. Bruhl, Berlin, June, 1911. Act. 40, diagnosis, advanced pulmonary tuberculosis, tuberculous laryngitis. Was aphonic, complained of exquisite pain when attempting to swallow and had dyspnea. The larynx showed ulceration of the arytenoid region and of both vocal cords. The right internal laryngeal nerve was injected with alcohol; four days later the left nerve was injected. Seen one week after the first injection. Patient said he was much relieved and could swallow food without discomfort. Two weeks later the laryngeal condition was unchanged. Not seen again.

CASE 2. Mr. C. Seen at Long Island Hospital, Boston, May, 1914. Act. 24, diagnosis, advanced pulmonary tuberculosis, tuberculous laryngitis. Examination of the larynx revealed ulceration of the interarytenoid region, edema of both arytenoid cartilages and erosions of the vocal cords. The left internal laryngeal nerve was injected with alcohol. Seen again on June 4. He said he had been very comfortable since the injection and had only slight pain on swallowing. He asked to have the right nerve injected. This was done. The next two days he felt very uncomfortable and complained of pain and burning on the injected side. Two weeks later he said the last treatment had been of no benefit and refused further injections.

CASE 3. Mr. G. Seen at the Mt. Sinai Hospital, Boston, Aug. 1, 1914. Act. 32, diagnosis, advanced pulmonary tuberculosis, tuberculous laryngitis. He gave a history of a throat operation at the North Reading Sanatorium seven weeks before. Examination of the larynx showed the entire mucous membrane pale, with here and there, patches of mucus adherent. The middle portion of the epiglottis was missing, leaving a V-shaped depression. The surface was comparatively clean. Both arytenoids were swollen and infiltrated. The vocal cords were ragged but there was no actual ulceration. He complained of pain on swallowing. The right internal laryngeal nerve was injected with an 85% solution of alcohol. On Aug. 22 he said he had been free from pain for four days following the injection. One c.c. of alcohol was again injected into the right nerve. On Sept. 5 he said he was free from pain for a week following the second injection. At this time his general condition was very poor and the end was apparently near. However in view of the relief afforded him by the previous injections an attempt was made to inject the left nerve. This was not completed because of the weakness of patient. Death occurred two weeks later.

The writer wishes to express his thanks to Dr. Richards of the Long Island Hospital and Dr. Arkin of the Mt. Sinai Hospital for placing the cases at his disposal and for permission to report them.

Medical Progress.

SEVENTH REPORT OF PROGRESS IN ORTHOPAEDIC SURGERY.*

BY ROBERT B. OSGOOD, M.D., ROBERT SOUTTER, M.D.,
HERMANN BUCHHOLZ, M.D., HARRY C. LOW, M.D.,
MURRAY S. DANFORTH, M.D.,
BOSTON.

(Concluded from page 59.)

CONGENITAL DEFORMITIES.

Congenital Dislocation of the Hip.—Lance³⁵ states that the consensus of opinion in the last decade has favored attempting reduction not earlier than the second year and preferably before the seventh year and not after the ninth. Lance's own opinion, based on cases reduced by himself and others earlier than the second year, is not in conformity with this. He believes that as soon as the diagnosis is made reduction should be attempted.

[Ed. Note.—We have believed that forcible reduction and retention in plaster were best not attempted before the second year for the following reasons: 1. There is less danger of injuring or displacing the epiphysis. 2. Fixative dressings for long periods are not easy to apply or to retain before two years. 3. Manipulation is safer after two years on account of the firmer texture of the bone after some weight-bearing. In the experience of one of the editors in three cases under two years in which simple abduction and traction had been employed, spontaneous reduction had occurred.]

Gangolphe and Plisson³⁶ give detailed histories and radiographic findings in eight cases of what they call latent congenital subluxation of the hip. The symptoms not appearing until the age of 25 to 30 are those of some form of arthritis or coxalgia, and they believe that the Roentgen rays show this latent tendency to dislocation, causing great susceptibility to strain and the development of an irritative arthritis because of the instability. In their hands the avoidance of fatigue and the strengthening of the muscles about the hip joint by special exercises has been sufficient to cause a disappearance of the symptoms.

Congenital Forward Dislocation of the Knee.—Rechmann³⁷ has reviewed fifty-nine reported cases of congenital forward dislocation of the knee and adds two more from the clinic of Prof. Riedinger in Würzburg. There are three stages. 1. Genu recurvatum. 2. Subluxation with lack of power to flex the knee. 3. Forward dislocation of the tibia on the femur. The most striking feature of all the stages is the power of hyperextending the knee, the patients being able frequently to touch the abdominal wall with the toes. The treatment consists in reducing the deformity; in extreme cases lengthening the patellar tendon is necessary. Fixation is fol-

lowed by ambulation in a brace maintaining the corrected position.

Ebert³⁸ calls attention to the necessity of differentiating between cases of congenital dislocation of the shoulder, epiphyseal separations, and the traumatic (obstetrical) dislocations. The characteristic attitude in which the arm lies in congenital dislocation is that of "birth palsy," i.e. adducted across the chest and strongly rotated inward. Upon abduction and outward rotation the slip of reduction is felt, the dislocation recurring as the arm falls. In cases seen early, reposition and fixation in the position of abduction and external rotation is sufficient. Later cases may require quilting of the capsule or osteotomy of the acromion and of the humerus, with outward rotation of the lower fragment.

Free Fascial Transplantation.—Kirschner³⁹ who was the first systematically to use free fascia flaps has written an important and exhaustive paper in which he discusses the results of the use of free fascia in his own and other surgeons' hands. He is still much impressed with the usefulness of the method. Some of its advantages may be summarized: 1. Its availability. Kirschner believes in autoplasmic grafts.

2. Its tendency to heal without reactions even under unfavorable anatomical conditions. 3. Its prolonged and perhaps permanent life in its transplanted position. At length Kirschner discusses the details of its use, the most important being. 1. Repairing tendons. 2. Substitution for articular ligaments and as artificial ligaments to maintain corrected positions of the foot, etc., in poliomyelitis. 3. As restraining bands to prevent dislocations of joints, the patella, or slipping tendons. 4. As interposing flaps in attempts to mobilize stiffened joints. 5. To cover amputation stumps. 6. To reinforce plastics for herniae of abdominal or thoracic walls and to strengthen or replace the dura mater.

[Ed. Note.—There seems to be little doubt that transplantation of free fascia, certainly autoplasmic and possibly homoplastic, will continue to be increasingly employed with success. In our own hands it has proved a most satisfactory material, perfectly tolerated by the tissues into which it has been implanted.]

Giertz⁴⁰, Hofmann⁴¹, and Lewis and Davis⁴² all report successful results with extensive fascial implants in the substitution of tendons and of the plantar fascia of the foot.

JOINT SURGERY.

Arthroplasty.—In earlier reports we have devoted considerable space to the subject of arthroplasty and the reports of successful cases. We believe the subject to be of great importance. It is more possible at present to review end results and to obtain a somewhat more judicial consensus of opinion.

Brocq⁴³ in a long article has reviewed the results of various methods of treatment carried out in different clinics for vicious ankylosis of the knee. He considers that when the angle of flexion is less than 90° resection is usually advisable. He thinks there is no case on record which is above criticism which proves that a permanently useful new joint can be obtained by the method of total graft. He is still sceptical but hopeful concerning the formation of useful joints in the knee by the reshaping of bone ends and the interposition of flaps of tissue or other substances.

Helferich's⁴⁴ review of the subject of arthroplasty, or as he called it before the last International Congress, "Operative neoarthrosis," is also of great value. The description of the technique offers nothing especially new, and the indications for the operation are those laid down by most careful surgeons who have had experience with these procedures. Helferich lays special stress on the wisdom of waiting for a long time after an infectious process has been active before attempting arthroplasty. "One cannot wait too long." He has collected about 300 published cases in many of which the process leading to the ankylosis had not been sufficiently healed to warrant the operation. Of these three hundred, 120 were of the elbow, 75 of the knee, 49 of the hip, 20 of the jaw, and small numbers of most of the other joints. Many of the elbows are satisfactory. The knee operation he considers still in the experimental stage in spite of some individual very encouraging results. Some of the hip cases he considers have been greatly improved and he believes that the shoulder and the isolated ankylosis of the patella offer favorable opportunities. The impression which is left from the review is that a new field has been opened, but that especially in the knee joint, where the greatest need for successful arthroplastic operations exists, there has resulted so far, when the cases are carefully sifted, the least general measure of success.

We have not before reviewed a very careful and helpful piece of research work done by Allison and Brooks⁴⁵. Their quite long series of experiments on dogs was undertaken to determine the tissue changes taking place in joints as a result of the interposition of substances intended to favor mobility. The results which they observed from the use of different substances are most interesting. I. Cargyle's membrane. This persisted only ten days and was of no use in preventing fibrous union. II. Free fascia. Persisted for a long time, but not in a continuous layer. Where parts were destroyed islands of fascia were left, about which the new adhesions between the joint surfaces formed. In two cases in which the fascia entirely disappeared there were no adhesions between the denuded surfaces. III. Pedunculated fascial flaps acted in the same way as free fascia, but the pedicle formed an extra restricting band. IV. Chromicized pigs' bladder (Baer) persisted

longer but caused a marked local reaction and may have been the cause of the considerable adhesions of fibrous tissue that formed and in every instance of its use caused a more or less firmly united joint. V. Fascia impregnated with metallic silver was not in the least irritating, persisted well, and in each case the denuded bone surfaces were covered with a connective tissue layer. Very few adhesions were present and the new bone formation was very slight.

[Ed. Note.—The work of Allison and Brooks is purely experimental on animals and does not attempt to show any functional end results, but it is surely most suggestive and we shall look for later reports of end results of the trial of this method in human cases.]

Fasano⁴⁶ eight years ago replaced a patella destroyed by an old osteomyelitis by a flap of tendon cut from the quadriceps and turned down raw side out and sutured. He reports the end result is still excellent and that similar operations on dogs have given equally good and durable results.

BONE SURGERY.

Certain recent pieces of experimental work concerning the question of osteogenetic function of the periosteum may be grouped together.

Brown (W. S.) and Brown (C. P.)⁴⁷ in a series of 25 experiments on dogs were unable to produce bone from periosteal implants into subcutaneous tissue and muscle. They were unable also to make free bone transplanted into non osseous tissue form new bone. Where a periosteal flap was lifted and carried through muscle back to bone no osseous tissue was produced away from the bone. Transplanted bone in contact with living bone produced new bone. They conclude that periosteum does not produce new bone.

Gallie and Robertson⁴⁸ believe as the results of their careful and seemingly comprehensive experiments that Duhamel, who from his experiments in 1739 concluded that periosteum produced bone, was misled by the growth of the endosteum. They have repeated Duhamel and MacEwen's experiments and are convinced that MacEwen is right and Duhamel is wrong, and that periosteum does not produce osseous tissue.

The results of McWilliams⁴⁹, based on experiments and human transplants, also are in the main like those of other recent observers, though he thinks that periosteum may produce bone in soft tissue. He brings out clearly the value of periosteum as a limiting membrane and a source of blood supply.

Cohn and Mann⁵⁰, repeating most of MacEwen's experiments in 32 of their own in dogs, conclude that at least periosteum does not always produce bone. In none of their cases did they observe any osteogenetic function. They think that small free bone implants may grow. They consider the periosteum to be a limiting membrane.

TRAUMATIC LESIONS, FRACTURES, DISLOCATIONS, ETC.

Hey Groves,⁵¹ after a large experimental and clinical experience, has reached certain definite conclusions: 1. Not to operate upon any case unless it seems probable that a better result can be obtained than by conservative treatment. 2. If operation is decided upon to employ a method by which perfect anatomical restoration of form can be secured and maintained by mechanical means of such efficiency that at the close of the operation the bone is stronger than before the fracture. He believes that we should not depend upon the frictional grip of nails or screws, but advocates a modification of the bolts and nuts of Prof. De Page (Brussels). 3. If perfect fixation has been thus accomplished he believes the limb should be freely moved as soon as the skin wound has healed,—7-14 days, and that natural function should be resumed as soon as true union has occurred. These conclusions are very similar to those of Sheen,⁵² who as the result of a previous large practical experience without the use of plates and a recent trial of the operative methods of mechanical fixation believes that "no plating is satisfactory unless the bone junction is perfectly firm so that the weight of the limb can be borne by it." Hey Groves considers that Bardenheuer, by his traction methods, Lucas Championnière by the emphasis he has placed upon the evil effects of prolonged fixation, and Lane by the development of efficient local fixation, are responsible for the recent advances in the treatment of fractures. When non-union has occurred he believes that bone grafts are of great value. They should be accurately fitted and retained in position by pegs or sutures. Their failure to stimulate union has been due, in his opinion, to their being loosely inserted.

Albee,⁵³ in reporting fifteen cases of pseudarthrosis in which he has obtained good union in every case, credits his success to the use of his twin motor saws, which accurately cut and mortise the graft, position being maintained by bone pegs or sutures of kangaroo tendon through drill holes. He thinks it is of importance to take the autogenous graft from some healthy bone and not from the eburnated shaft near the seat of fracture.

Bland Sutton⁵⁴ believes that fractures of the external malleolus are frequently unrecognized. When recognized he has found them hard to hold in place and that the displacement was a cause of much pain. He has had good results from the removal of the small loose fragments.

Cotton's⁵⁵ article on astragalus injuries is comprehensive and analytical, and his advice as to treatment is helpful. These fractures, especially when the calcaneo-astragaloid joint is involved, are often very crippling and interfere seriously with the flexibility and painless function of the foot.

Turner Thomas⁵⁶ maintains that the primary cause of "obstetrical palsy" is usually not the

rupture of the brachial plexus, but rather the posterior subluxation of the shoulder joint. In the injury to the joint the plexus may be involved in the adjacent inflammation and at operation found to be imbedded in an abundance of tough adhesion, but he is convinced that the frequent presence of a posterior subluxation and the bent down condition of the acromion process are due to more than a brachial plexus injury. In the nine cases of severe and permanent palsy there was associated a subluxation. In two of the three cases in which there was no subluxation full function has returned. Immediately after birth reduction will be easy, the recognition of the condition being the important thing. He believes that cases in which there is no dislocation or the head of the humerus can be brought into place, offer a good prognosis, and that by exercise the capsule may be stretched to allow full abduction and the muscles induced to functionate. He agrees with Prof. Lange that these cases should not be "left alone."

Menneke⁵⁷ calls attention to the often serious and permanent disabilities resulting from fracture of the acromion process. He is sure the lesion is frequently overlooked. The injury is commonly due to falling on the hand with the arm abducted and the impact of the head of the humerus, as the arm is still further forcibly abducted. Direct blows he thinks are rarely responsible.

Thomas⁵⁸ also reports 18 cases of habitual or recurrent dislocation of the shoulder joint in which he has performed the operation of capsulorrhaphy with good results in all. He prefers the anterior axillary incision and carefully describes the steps and the dangers. He looks upon the lesion as merely a hernia of the joint and believes the operation more safe and effective than that for inguinal hernia. The convalescence is from one to three weeks.

Schwarz⁵⁹ considers that sudden traumatic separation of the upper epiphysis of the femur with immediate noticeable displacement practically never occurs. On the other hand, he believes that slight traumata may lead to a loosening of the epiphysis, which later becomes separated under the weight of the body.

[Ed. Note.—If Schwarz's views are true it is possible that we have here the explanation of certain of the obscure cases of flattened heads associated with coxa vara, which Bloodgood and Legg and others have reported.]

Lehmann⁶⁰ reports thirty-seven cases of injury to the elbow, comprising twenty dislocations, eleven fractures, and six questionable fractures, all in soldiers. There was more or less superabundant ossification about the joint following all these injuries. Many of these bony proliferations show a tendency to absorption if rest is afforded, but their occurrence indicates the necessity in these elbow injuries, even where the dislocation is reduced or no frank fracture is

made out, of rest to the arm and the avoidance of too vigorous early massage.

MISCELLANEOUS.

Chronic Granulating Inflammation of the Bone Marrow. Rost,⁶¹ working in Wilms' clinic in Heidelberg, has been conducting an interesting piece of research work on bone marrow. His work was stimulated by finding what seemed to be a chronic, granulating, non-suppurative osteomyelitis in several sections of bone removed from cases resembling tuberculosis. He then made a large series of experiments on rabbits to determine what influence a number of various substances had on bone marrow. Peptone, bouillon, tuberculin, sugar, olive oil, formalin, alcohol, acetone, magnesia, bismuth, agar, and different fluids gave only a slight reaction, with a small scar containing little connective tissue, which is replaced by bone marrow in a few weeks. Perlmutter dust caused necrosis. Calcium led to the formation of giant cells. Horn dust was followed by rather extensive proliferation of connective tissue and the formation of cysts. Iodoform and Mesbé also caused some connective tissue formation, but the most extensive was caused by the injections of certain carbohydrates, such as Crude Paraffin and American Vaseline. The injection of cocci of decreased virulence caused a granulation tumor which greatly enlarged the bone, together with thickening of the vessels and a perivascular infiltration of round cells. Rost believes that many cases of chronic inflammation in bones of adults much resembling tuberculosis are really cases of chronic non-suppurative osteomyelitis, usually due to the staphylococcus.

[Ed. Note.—The editors have seen several cases of chronic non-suppurative osteomyelitis in which pain and the suggestion of a cavity in the x-ray plate have led to operative exploration. The findings in these cases have been confirmatory of Rost's views. In some of the cases a culture of the staphylococcus albus was obtained. In others there was no bacterial growth. There has been no frank suppuration, but evidence of a chronic low grade inflammatory process.]

Bone Necrosis. Axhausen⁶² points out that the impression which most text-books of pathology give, that bone necrosis and sequestra formation are one and the same thing, is erroneous. Sequestra he believes are the result of infection and occur when a portion of necrotic bone is surrounded by pus and thus separated. Axhausen seems to take it for granted that cortical bone transplants become necrotic, but that the periosteum and portions of the marrow survive, and that the connection between dead bone and living periosteum is the cause of new bone formation.

Syphilitic Affections of the Bones in Children.—Fitzwilliams⁶³ considers that the only difference between syphilis acquired during adult life and syphilis acquired before or at birth is

that in children the slight resistance of tissue allows the disease to run unchecked, irregular in its course, and with a riotous mixture of primary and tertiary symptoms. In his experience, children tolerate mercury well and its administration should be kept up at least two years. For the periosteal pain in tibial periostitis he advocates incision, division of the periosteum, the cutting of a long trench into the marrow and removing the strip of cortex, closing the periosteum and subcutaneous tissues with catgut. This seems to the editors a rather radical and usually unnecessary procedure.

Late Hereditary Syphilis of the Long Bones. Mouchet and Saint-Marc⁶⁴ publish two cases of late hereditary syphilis resembling in the x-ray appearances in the female patient a sarcoma and in the man a multilocular cyst.

[Ed. Note.—Such reports as this we believe are important, since our knowledge of syphilitic bone disease is still very meagre, and as Boorstein has said, far too few cases of syphilis of the bones have been carefully studied and reported, and we are very lacking in our ability to recognize the clinical manifestations. We are coming to realize that its types are very numerous and frequently very confusing, in that they resemble many other non-luetic bone lesions in their Roentgenological appearances.]

Operative Treatment of "Flat Foot." Els,⁶⁵ working in Garré's clinic in Bonn, has been impressed with the good results which have followed tenotomy of the Tendo Achillis in cases of "flat foot." They have followed Hertle's method of open incision, division of the tendon, turning of the divided ends away from each other, the one up, the other down, so that a space of about 4 cm. is left between. Els says that this space is bridged in a few months by a firm scar, tendon-like band. Most of these patients were able to resume their work in about five weeks after their operation, although many of them had been idle for many months previously. The marked diminution of pain even when the deformity was not much corrected he believes to be due to the lessened strain on the astragalo-scaphoid joint, owing to the change of position of the os calcis. Only occasionally are supports necessary, though in the severe cases a bone operation is advised.

[Ed. Note.—We are not confident that this operative procedure is wholly rational or advisable, although apparently it has relieved symptoms in many cases. In Els' cases there was, in addition to the tenotomy a rest of several weeks, which alone frequently relieves symptoms. He states also that the space between the divided ends of the tendon is soon filled in with a firm tendon-like band of scar tissue, which must act very like the tendon. In cases with marked deformity a support was used, and in those with abduction an alteration in the tread of the shoe. While we recognize the frequent association of a short heel cord with foot strain and acknowledge its etiologic relation in certain cases, we see many

cases, ranging from simple pronation strain to marked valgus, in which dorsal flexion to well beyond a right angle is possible. We are inclined to believe that this operation has little to commend it over a simple tenotomy or tendon lengthening and that even these procedures are only rarely necessary in cases of foot strain.]

Under the title of *Etiologic Relation of Posture and Gait to "Flat Feet,"* Harris⁶⁶ holds that improper posture and faulty methods of standing and walking are responsible for weak and flat feet and believes that arch supports should never be worn, and maintains that all cases can be cured by certain exercises which he describes. 1. Rising on heels. 2. Rising on tiptoes. 3. Rising on flexed toes, "grasping." 4. Feet crossed, swaying laterally, etc., etc.

[Ed. Note. We agree heartily with this common relation of bad posture and gait to foot strain. We admit the abuse of arch supports by orthopaedic surgeons as well as by instrument makers and shoe stores, but we consider that the temporary use of some form of support is at times a most helpful means of relieving symptoms and allowing people to lead ambulatory lives. We believe that they should not be prescribed as is so often done as a cure. We should not relax one whit in our exercise treatment and the gradual development of muscles so that a normal shaped flat heel, flexible shanked shoe may be worn with comfort and may aid in the further development of muscles, while the strength and flexibility of the foot is increased. The emphasis at present needs to be laid upon the surprising gains which can be made in this manner by persistent work on the part of the patient even in cases of rigid, painful feet. We do not believe, however, that growing children with bad weightbearing lines, not controllable by altering the tread of flexible shoes, or adults with faulty muscle balances and valgus, should be allowed to walk in positions of deformity and strain. Any exercise treatment administered to muscles already fatigued is less efficient than it should be. Let us be rational and relieve strain in the foot joints by temporary support as we do in other joints. Let us give the devil his due, though at the same time recognizing that what may be a temporary blessing may be a permanent curse.]

Hunt⁶⁷ describes a painful spasm of the lumbar muscles following the exertion of walking or standing; which disappears after a brief period of rest. The motions of the spine may be free and painless and the symptoms are produced only by rhythmic muscular exercise. Hunt considers these symptoms to be due to the same causes as the more generally recognized angina cruris or intermittent claudication and limping, where the cramplike spasm is present in the calf. The arteriosclerotic changes often present in the abdominal aorta in these cases of "Ischaemic Lumbago" seem to account for the condition.

We believe that the example of the American Orthopaedic Association in appointing at its

Washington, 1913, meeting a Commission to Study the Results of Treatment of Scoliosis may well be followed by the appointment of other impartial commissions to study the results of other vexed questions such as arthroplasty, etc. This Scoliosis Commission invited various physicians who were having large clinical opportunities to submit to it six cases, which had been treated by the various methods of forcible correction in plaster jackets. They then selected the clinic of Dr. E. G. Abbott, of the Children's Hospital in Portland, Maine, the clinic of Drs. Lovett and Sever at the Children's Hospital in Boston, the Clinic of Dr. S. Kleinberg at the Hospital for the Ruptured and Crippled in New York, and the clinic of Dr. Z. B. Adams at the Massachusetts General Hospital in Boston, for personal observation. Cards with identical headings as to cause, types of curvature, length and type of treatment and previous condition as shown by records and present condition, were made out by the surgeons for their own cases and independently by each member of the Commission who personally visited the different clinics at the same time and observed the patients and their records. The cases were divided into Grades A, B, and C in proportion to their severity and rigidity and the figures 1, 2, 3, 4, denoting grades of improvement from over-correction to no improvement were agreed upon. Percentages could then be roughly worked out and the Commission found these were practically the same in all their three independently taken observations, though they did not in most cases agree with those of the physician whose cases were being thus critically studied. The report of this Commission was presented at the June, 1914 meeting of the American Orthopaedic Association held in Philadelphia, and has been published in the July number of the American Journal of Orthopaedic Surgery. The great difficulty which the Commission found in arriving at absolutely trustworthy judicial conclusions was the meagerness and lack of standardization of the previous records of the cases. The Commission has been continued and this year is taking its records with X-ray and standardized photographs in the same clinics of a series of cases before treatment, and is planning to take other similar records of the same cases after six months of treatment. We believe this method represents real progress in orthopaedic surgery and is likely to allow an earlier reliable conclusion as to the value of new methods of work than has been possible heretofore.

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Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

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THE THIRTY-SECOND ANNUAL MEETING OF THE NEW ENGLAND PEDIATRIC SOCIETY WAS HELD IN THE BOSTON MEDICAL LIBRARY, FRIDAY, OCT. 23, 1914, AT 8.15 P.M.

The following papers were read:

MEGALOCOLON AND MICROCOLON WITH CASE REPORTS.

DR. LANGLEY PORTER, San Francisco, Cal.

THE DIFFERENTIATION OF HUMAN AND COWS' MILK BY COLOR TESTS.*

DR. RICHARD S. EUSTIS, Boston.

ASTHMA IN CHILDREN: ITS RELATION TO EGG POISONING.†

DR. FRITZ B. TALBOT, Boston:

* See JOURNAL, page 92.

† See JOURNAL, Vol. clxxi, page 708.

MEGALOCOLON AND MICROCOLON.

By **LANGLEY PORTER, M.D.**, and **ALLANSON WEEKS, M.D.** (From the Medical Dept. of Leland Stanford Jr. University.) It is probable that megalocolon is a more common deformity than is generally thought. The writers have encountered six cases during the past five years.

The symptoms present from birth are great abdominal enlargement, visible peristalsis, obstinate constipation, later anemia and toxemia from fecal retention.

The process may include the entire gut or it may cease at the sigmoid and be replaced by a narrowing. That isolated segments of the large intestine may be affected while most of the gut remains intact and healthy is to be doubted. Fatal collapse can occur from fecal obstruction and this may be brought on by injudicious attempts to empty the bowel.

High fat formulae are not adapted as soap stools give more trouble in all classes of megalocolon than other stools. Enemata are the best means of producing bowel evacuations. Castor oil and magnesia are to be shunned. In older children milk should not be given.

The one measure that promises relief is operative procedure which should be utilized in two or three stages: colotomy with artificial anus; (and this cannot be done too early in the child's life or in the history of the case); lastly, excision of the entire large intestine with anastomosis from the ileocecal region into the rectum; or anastomosis may be done as a second step and resection of the entire colon be made a third operation.

The authors also reported a case of microcolon which illustrates a condition opposite to megalocolon and at the same time furnishes us with an abnormality in the small intestine which in every way parallels the pathological changes found in the large intestine in cases of giant colon. Some reports under the caption stenosis of the colon may have reference to this condition.

DISCUSSION.

DR. J. L. MORSE: I have a case here of this condition which I would like to show to the Society. A child of 25 months, born at full term; nursed for five months, then fed on condensed milk until a year old and since then on an average infant diet. The mother noticed that the abdomen was large at birth and states that in the beginning the enlargement was more noticeable in the lower part of the abdomen and gradually spread upward until it involved the whole abdomen. The baby has always had a good digestion. He has never vomited, but he has never had spontaneous movements. He had from one-half to one teaspoonful of castor oil every other day during the first year and castoria every other day since then. The baby has thriven normally, as you will see, and is in good general condition in spite of his trouble. He was under observation in the Children's Hospital from the third to the eleventh of October. He had no temperature during this time. The tuberculin test was negative. His white blood count was 10,800. He had no spontaneous stools, but with help had daily movements. These stools were medium sized, light-brown, semi-solid, and alkaline. They contained no neutral fat, but a very slight excess of soap and a little starch. That is, his digestion, as shown by the microscope,

was fairly good. He had very definite undulating peristalsis throughout his abdomen. I do not know whether he will show it tonight or not, but he had it a good deal of the time while there. We had him under ether and nothing was discovered except the distinct loops or coils of intestine. He was given a bismuth meal, and we have the plates here which we will show you in a few minutes. These plates show that there is some delay in the emptying of the stomach, but that after the stomach is emptied, the bismuth goes down through the small intestine fairly normally. The plates taken after a bismuth enema show a dilatation of the intestine for some distance up. The bismuth apparently did not, however, come anywhere near going into the whole of the large intestine. I do not think that we gave him enough. The rectal examination was negative.

Dr. William Ladd saw the case with me in consultation and we both felt very strongly, as, of course, everybody does about this condition, that the child's best chance lay in an operation. The mother does not look at it the same way at present, but we hope that she will see the light later.

DR. A. C. EASTMAN: It may be of interest to mention a case I saw a year ago illustrating the border line cases of megalocolon. This child I first saw in consultation one year ago at which time he was 14 months of age. The mother was still nursing him and having difficulty in weaning him. She gave a history of more or less vomiting during his first year in spite of being breast-fed. These attacks were irregular in onset and seemed to come more often in connection with attacks of constipation. After some difficulty he was weaned and for a while kept on a milk diet as there was difficulty in adding any other food. His constipation continued and at times was very stubborn. We added laxative foods to his diet as fast as he would take them, cutting down the quantity of milk, and for a while there seemed to be some improvement. In spite of this every few weeks he would have attacks of constipation which required most energetic treatment with oil, salts and enemata finally to secure a result.

Last May, when 22 months old I saw him again. He weighed twenty pounds, was still having marked constipation, general flabbiness of the muscles and altogether in a rather poor condition. His appetite was very poor and in order to get him to eat they had diminished his laxative diet and put him back on a milk diet. He was given two drops of nuxvomica three times a day and put back on his laxative diet.

In August he had an attack of diarrhea followed within two or three weeks with his previous constipation. His movements were very light colored, of small size and quite frequent. He also cried with apparent pain each time that he had a movement.

In September x-ray plates were taken after a bismuth meal which showed normal muscular stomach tone, the bismuth appearing at the cecum within about four hours. A marked enlargement of the whole colon and rectum was shown and it took nearly 72 hours for the colon finally to empty itself of the bismuth. He was then put on a strict laxative diet and given high oil enemata each night. As a result he had a better movement early in the morning but continued to have frequent small defecations during the day.

In October his general condition was much improved and his present weight is 25 pounds.

Since the date of the meeting he continued to

have considerable pain with his bowel movements which were still quite frequent and small. Rectal examination showed marked spasm of the sphincter with considerable excoriation around the anus. Applications of a mild ichthyol ointment were used for one week with slight benefit. The anus was then dilated under ether and since then his condition has improved steadily, the pain has ceased and the dejections larger and less frequent.

DISCUSSION ON DR. TALBOT'S PAPER.*

DR. H. I. BOWDITCH: How is this egg albumin administered? Is it given as a dry powder?

DR. R. H. SMITH: The egg albumin is prepared by Merck. It can be procured at the drug stores in the powdered form in capsules.

Book Reviews.

Kirkes' Handbook of Physiology. Eighth American Revision. Revised by DR. CHARLES W. GREENE. Illustrated. New York: William Wood and Company. 1914.

The appearance of a new edition of this widely used Handbook of Physiology arouses again the ever-recurring question as to the reason for its popularity as a text-book. It has been adopted by colleges as the basis of undergraduate instruction in physiology, and is used also in medical schools for the instruction of medical students. Whatever may be its merits as a handbook, to be used for reference by persons already familiar with the subject matter of physiology, as a text-book, to be placed in the hands of students, it serves neither undergraduates nor medical students satisfactorily.

To illustrate specifically: A review of histology, occupying 54 pages, is placed near the beginning of the book. The college undergraduate is bound to find this section dull and almost meaningless. The medical student, who, necessarily takes elaborate courses in histology, independently of his work in physiology, will pay no attention to it. Such histology as may properly be included in a text-book of physiology will be grasped more completely by the student if given in connection with the physiological discussions of the tissues described. A very brief general outline at the beginning serves better than an elaborate discussion.

Immediately following the section on histology is a chapter of 45 pages on the chemistry of the body. In this chapter the author plunges

without warning into the most complex conceptions of organic chemistry. This procedure is legitimate in a handbook, but when the handbook is diverted to use as a text-book we are confronted with the fact that its users will be either students without adequate chemical preparation for comprehending these conceptions, or students whose previous or concurrent courses in biological chemistry make the introduction of them into a physiological text-book unnecessary. Much of the material of this chapter is useful for reference. The transfer of all of it, except a general outline, from the body of the work to an appendix, would increase the usefulness of the book as a text-book.

Passing on to the strictly physiological portion, we find in the chapter on blood, under theories of coagulation, Morawitz' complex theory given in detail, accompanied by his bewildering diagram, and immediately afterward Howell's beautiful simplification of the theory introduced, apparently as an afterthought, in such a manner as to becloud rather than to clarify the discussion.

There is no attempt to present the facts of physiology in sequence. The early chapters make familiar mention of matters which are not formally introduced until much later. Thus, on p. 84, enzymes and their catalytic action are mentioned, although no description of them is to be found until page 329 is reached. Similarly, in the discussion of means of hastening coagulation, on page 125, epinephrin is introduced, but the student does not become acquainted with this substance nor with the general conception of hormones until he has read more than three hundred pages further. In this same chapter on blood the phenomenon of coagulation, a matter purely of blood chemistry, is discussed in detail *before* the chemical nature of blood is described. Similar curious inversions of logical order occur throughout the book.

In many portions, notably the sections on the cerebrum, cerebellum, and sympathetic system, the author contents himself almost wholly with statements of the experimental basis for our knowledge of the functions under consideration, leaving the interpretation of the experiments to the reader. This method of presentation is highly satisfactory to the physician or physiologist who wishes to obtain at second-hand the data on which to base his own interpretations. For the beginning student the study of numerous experimental data, not all of equal significance, and unaccompanied by clean cut inferences, is less likely to lead to the desired grasp of physiology than is the reading of a text-book containing fewer descriptions of experiments, but emphasizing the fundamental principles which have been established as the result of the sum total of physiological investigation.

Save for a few errors in the index, the work, on the mechanical side, is satisfactory. The illustrations are well selected, as a rule, and are printed with enviable clearness.

* See JOURNAL, Vol. clxxi, p. 708.

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126 Massachusetts Ave., Corner Boylston St., Boston, Massachusetts.

HOSPITAL EFFICIENCY.

A HOSPITAL accused of being inefficient must of necessity meet a charge which involves a moral as well as a business responsibility. A group of men may lose money by poor business management and still lose it honestly, if the money was their own or is wasted with the approval of those who possessed it. Health may not thus honestly be lost by hospital inefficiency, since it never belongs to those by whom it is lost nor is it wasted with the approval of those who possessed it. Health should not be discussed in terms of dollars and cents.

We are convinced that this charge of inefficiency can with justice be made against certain hospitals. We believe that none desire to be inefficient and we know that the struggle to become efficient is the chief aim of many and the attainment of a few. There is no problem more important, but many of the methods of solution are still in the stage of development.

Without question there should be a group of representative men connected with every hospital who have the best interests of the hospital

at heart, whose duty it is to evolve some standard by which the efficiency of the administration and the different medical services may be judged. The difficulty of picking this representative efficiency committee is admitted to be great. Mistakes will lead to a more careful selection but will not prove the principle wrong. The difficulty of evolving a standard of efficiency especially with reference to the staff, is admitted to be still greater, but with an earnest attempt to understand conditions of work, and by critical, and at the same time friendly, scrutiny of end results, we believe fairly suggestive impressions may be gained. These impressions may be confirmed or disproved by further special observation.

It may be fairly questioned whether at this time there are any hard and fast rules by which standards of efficiency applicable to all hospitals can be determined. Opinions of men differ. These men are equally well qualified to hold opinions and are zealous and earnest in striving to bring about this universally desired result. The report of the committee appointed by the Clinical Congress of Surgeons is important and suggests methods of determination. It should be read by everyone interested in hospitals, certainly by every member of every board of trustees and staff, and it should lead to an immediate consideration of the question by all hospitals.

We as medical men should not only welcome but demand the closest examination by friendly peers of our methods and, with due consideration, of our results. We believe we shall reach the goal of hospital efficiency most quickly by proceeding on the supposition that there is a sincere and general desire for this efficiency, though there may be honest differences of opinion as to methods of attainment. The large attendance at a recent medical meeting where the subject was under discussion was an evidence of the interest of physicians of this and other communities in this question.

Hospitals have a right to request that the investigation be left in their hands, but the public have a right also to demand that this investigation, which so closely concerns them, be thorough and as speedily carried out as the complexities of the problem will allow.

If this demand is not met it is conceivable that an unsympathetic investigation may be instituted, the inevitable injustice of which it is unpleasant to contemplate, and the harmfulness of which it would be difficult to measure.

EXERCISES IN THE TREATMENT OF TABES.

In another column of this issue we publish a paper on compensatory exercises in the treatment of locomotor ataxia. Owing to the development of salvarsan therapy and the recognition of the fact that tabes must be taken out of its old category as a para-syphilitic disease and regarded rather as a late manifestation of the original infection, renewed interest in its treatment has been natural and inevitable. Experience is now sufficiently extensive to make the definite statement that tabes is distinctly influenced by arsenic therapy and it is, perhaps, not too much to say that, if taken in its early stages, it may be cured, or at least rendered stationary for an indefinite period of time. The enthusiasm which has attended this therapeutic outlook has, perhaps, distracted our attention from other useful, if less brilliant, methods of treatment. This is unfortunate, since it must be apparent that however beneficial salvarsan therapy may be, it can by no means be regarded as curative in well-developed stages of the disease. Its influence on pain and the various discomforts incident to the disease is now somewhat universally recognized, but that it can, unaided, overcome a pronounced ataxia of long duration, is not to be expected, and this, certainly, it has not succeeded in accomplishing in any notable degree. As an adjuvant, therefore, to the salvarsan treatment, which, in our opinion, should become a routine measure in practically all cases, stress should certainly continue to be laid upon the principle of training in coördination, originally advanced by Fraenkel and subsequently developed and amplified by Foerster, to which Dr. Swift again calls attention.

The Fraenkel exercises are clearly based upon a perfectly logical conception of the nature of ataxia as essentially a loss or impairment of coördination. It is apparent, therefore, that any means capable of redeveloping or reëducating the coördination becomes an entirely rational method of treatment. Experience demonstrates both its rationality and its practicability. It is quite possible to use these exercises, perhaps in somewhat modified form, in hospital out-patient departments and with unquestioned benefit to the patients, both as regards their general morale and also their actual capacity to coördinate their movements in more orderly fashion. It is possible, as suggested by Dr. Swift,

that the Fraenkel movements lay unnecessary stress upon coördination in the lying position. Foerster, on the other hand, has placed chief emphasis upon the education of equilibrium and is of the opinion that, other things being equal, walking exercises and others in the erect position, lead more quickly to the desired end. In this connection it should be remembered that Fraenkel also insisted upon walking, but only after a somewhat perfect coördination in the less exacting reclining position had been secured. The suggestions made by Foerster and approved by Swift are, undoubtedly, of great practical importance in the treatment of this condition, and other things being equal, it is important to bear in mind that methods which lead to the most direct results are desirable. As a matter of fact, the theories of Fraenkel and Foerster are the same in principle and are supplementary to each other. The important point is, that both lay stress upon the necessity of training and coördination as a distinct method of treatment in one of the most distressing conditions of the disease. It is well to bear this in mind, as suggested before, in view of the possibly over-enthusiastic claims of salvarsan in the treatment of a disease which, if well developed, demands all the resources of our therapeutic art.



THE PROPOSED ABOLITION OF THE OFFICE OF CORONER IN NEW YORK.

For a number of years past, efforts have been made by the more enlightened part of the community in New York to do away with the time-worn, if not time-honored, institution of "crowners' quest," but thus far they have proved unsuccessful. This year there seems to be some prospect that this desirable consummation may be attained.

One ground for this hope is the moral effect which must certainly result from the report by Leonard M. Wallstein, commissioner of accounts, of an elaborate investigation of the system as conducted in New York City, noted in last week's issue of the JOURNAL. According to this report, a continuance of the present system would constitute a public scandal and disgrace, and it is indeed a scathing record which is presented in the following extract:—

"An analysis of 800 inquisition papers made by Dr. Haven Emerson, deputy commissioner of health, shows that in 320 cases, or 40% of those examined, there is a complete lack of evidence to justify the certified cause of death. The incompetent work of the coroners' physicians in the investigation of criminal deaths deprives the community of an absolutely necessary deterrent to crime. So far as the activity of the coroners' office in New York City is concerned, infanticide and skilful poisoning can be carried on almost with impunity. Under the elective coroner system, and in the face of exceedingly difficult conditions surrounding successful criminal prosecution, New York is compelled to get along virtually without aid from the science of legal medicine, a situation that exists in no other great city in the world."

In the field of criminal abortion we learn that the system, instead of serving to detect crime, has become an agency for shielding defendants and concealing criminality. In connection with abortion cases coroners are said to have called or failed to call juries, as best suited their purposes, to have packed juries, and to have intentionally failed to call necessary witnesses or cause police investigation, or to utilize the results of such investigation when made. There is given a long catalogue of the shortcomings and misdoings of the coroners, and a few additional charges may be cited to show the necessity for a radical change. These officers have abused their powers to compel the employment of favored undertakers by the unfortunate families of deceased persons. Civil rights and liabilities have been profoundly affected by the findings of coroners whose action in many instances has been a travesty on justice. Attempts have not infrequently been made to extort sums of money from insurance companies in return for findings in the companies' interest, and until the enactment of the workmen's compensation law the coroner sometimes injured the rights of deceased workmen by helping to establish for employing individuals or corporations a condition of affairs which would relieve them of liability.

The elective coroner in New York represents a combination of power, obscurity and irresponsibility which has resulted in inefficiency and in malfeasance in the administration of the office. With the coroner's constant temptation and easy opportunity for favoritism and even extortion, the report says, with utter lack of supervision and control, and without affording the slightest preparation or training to create in his mind a scientific and professional interest in the performance of his duties, the present system could

not have been better devised intentionally to render improbable, if not impossible, the honest and efficient performance of the important public functions intrusted to this office. Candidates for the position of coroner are nominated "to balance the ticket," to represent a given race, religion, faction or district. Thus, almost every consideration except proper qualification determines the selection, and many of the coroners are absurdly ignorant both as to the legal and the medical aspects of their work. Still another serious objection to the system is the waste of the public funds, as the expense of its maintenance is something like \$175,000 annually, an amount far exceeding what it would cost, under a proper system, to have the work done in an infinitely better manner. The present conditions have long been known, and it is asserted that a remedy would long since have been forthcoming had this not been prevented by purely selfish political considerations. Never before, however, has the public had set before it so complete an exposition of these evils.

Since the completion of the report a case has come to light which further illustrates the charges made in it. A laborer was found dead twelve hours after the janitor of the house where he lodged had helped him to his room in a disabled condition. The police apparently found nothing suspicious about the case and the body was taken to the morgue, where a coroner's physician gave the cause of death as nephritis. When, however, the undertaker who was employed came to examine the corpse he found a large wound at the back of the head. He promptly notified the district attorney's office, and consequently the funeral was postponed and the body ordered back to the morgue. There an autopsy was made by Dr. Charles Norris, director of the laboratories of Bellevue and Allied Hospitals, and Dr. Douglas Symmers, associate professor of pathology in the University and Bellevue Hospital Medical College; when there was found a wound in the back of the head about an inch long and half an inch wide, beneath which there was a linear fracture of the skull, while no evidence of any disease whatever was discovered in the kidneys. The appearances of the injury indicated that it was probably inflicted by a blow such as that by a hammer, and an examination of the man's room showed a considerable amount of blood on the floor, where his body was found.

The recommendations which Commissioner

Wallstein makes include the elimination of the "scandalous jury system and coroners' court" and the substitution therefor of a system of medical examinations by experts similar to that which has worked so successfully in Massachusetts, and he expresses the opinion that the choice between these two methods of fulfilling a public function is "as clear as the distinction between night and day." A bill embodying these recommendations is now being prepared for introduction in the legislature. Similar bills have from time to time been presented at Albany, only to be killed in committee or fail of enactment, but better things are hoped for this, especially as it is believed that it will have the earnest support, not only of the Mayor of New York, but of Governor Whitman, who, from his extended experience as district attorney, has had ample opportunity for observing the deficiencies of the coroner system as a deterrent from crime.

THE IMPORTANCE OF THE PHYSICAL EXAMINATION OF THOSE ATTENDANT UPON INFANTS.

THE untrained attendant received into the family to care for small children and infants, which work necessitates the closest and most intimate contact, often for long periods of time, is practically never examined physically before beginning such duties. In the hospitals, where courses of training of some months' duration are given, such persons are carefully looked over, but the number of persons receiving such training is very small. The problem as a whole does not affect a very large percentage of families, but is none the less an important one. It is estimated that 16% of American families keep one servant or helper and 2% more than one.

The importance of the subject narrows down largely to the consideration of the question of latent tuberculosis or inherited lues. When most persons are engaged in this work, they are at the age when latent tuberculosis is apt to become active, unnoticed perhaps for a considerable period of time, during which, the intimate contact between infant and attendant is kept up. We are, at the present time, more fully aware of the great amount of unrecog-

nized and latent inherited lues in all large communities, through the application of the Wassermann reaction and the use of the x-ray.

It is not then saying too much, with due regard to the fallacy of some eugenic teachings and propaganda, that a person employed in such intimate contact with small children and infants, often for long periods of time, should, on demand, present a certificate of health from a reputable physician, competent to diagnose the above-named troubles. If the expense of such a certificate were too much for the attendant, arrangements could, perhaps, be made with employment agencies in large cities to have the applicants for such positions examined at some large hospital or dispensary, and such certificate issued at a nominal fee, to be renewed at any time, if all is found well. Whether or not the question is settled in this manner, it seems probable that the part of the public directly interested will, when their attention is called to the importance of the matter, have this examination made by their own physician.

DISINFECTION OF SEWAGE FROM TRAINS AND STEAMERS.

WE all recognize the danger of discharged excreta from trains while passing over watersheds and from steamers, especially on the great lakes, when perhaps a few minutes later another one will take in drinking water just where the foul matter from the first has been discharged. The locking of toilet doors on trains while traversing watersheds and while in stations causes considerable inconvenience to passengers, and it is doubtful whether in the case of watersheds the control is absolute. The use of steam for the disinfection of sewage was suggested by Professor Earl B. Phelps in March of last year, and applying this suggestion to the special problem of train and steamer sewage disposal, Leslie C. Frank, sanitary engineer in the Public Health Service, has devised a plan which he has successfully carried out in the preliminary experiments carried on at the Hygienic Laboratory.¹ This plan includes an automatic disinfection of the sewage of a train or steamer by use of heat generated by the power from its propelling engine. There is an insulated container 12 to 15

¹ Sewage Disinfection for Vessels and Railway Trains, Leslie C. Frank, U. S. Public Health Report, January 1, 1915.

ches high and 12 to 15 inches wide, and 4 feet long. The contents are automatically discharged when they reach the boiling point. The device is not limited to steam as a heating agent. For the steam may be substituted electric heating elements, a coil of pipe carrying the exhaust from a gasoline engine, or direct heat from gas or gasoline burners. It is, therefore, apparent that this plan is applicable to the disinfection of sewage from practically all forms of common carriers. It is estimated that the cost of construction uninstalled would be about \$16 for each steamer toilet and about \$15 or \$20 per coach on trains. Using steam as a heating agent, the cost of disinfection on steamers would be \$1 per thousand closet flushes, and on trains 1½ cents per thousand flushes. Estimates of toilet usage indicate that the cost per toilet would be 5 cents a day on steamers and 1½ cents a day on coaches. Thus economy of resources as well as economy of health would be attained by the process thereby deserving the approbation of the business public as well as the professional public.

MEDICAL NOTES.

SMALLPOX AT VERA CRUZ.—Report from the American consul at Vera Cruz, Mexico, on Jan. 7 states that smallpox is now epidemic in that city. The number of cases is not given.

MENINGITIS AMONG CANADIAN TROOPS.—A cable report to Fredericton, N. B., on Jan. 7 states that 30 cases, with 10 deaths, of cerebrospinal meningitis have recently occurred among Canadian troops in camp on Salisbury Plains, England.

PLAGUE INFECTION AND ERADICATION IN NEW ORLEANS.—The weekly report of the United States Public Health Service for Dec. 25, contains a detailed list of thirty cases of human bubonic plague recognized and reported in New Orleans at the time of the outbreak in that city last summer. The last case occurred on Sept. 30. There is also an epidemiologic study of a plague focus in New Orleans by Dr. Charles B. Akin, illustrated by five excellent plates. The importance is emphasized of thorough destruction of all hiding places and thorough closure of all holes in brick walls on premises where plague has been found, to preclude the possibility of house infection.

AUSTRIAN ACADEMY OF SCIENCES.—The Austrian Academy of Sciences has recently awarded

to Professor Wagner von Jauregg the sum of five thousand marks for his research on the etiology of goitre.

HUNTERIAN ORATION.—The Hunterian Oration of 1915 will be delivered on Feb. 15 before the Royal College of Surgeons of England by its president, Dr. Sir Watson Cheyne.

AN IMPORTANT MEDICO-LEGAL DECISION.—On Jan. 7 an important decision was rendered by a New York surrogate to the effect that a child born with a beating heart is alive, even if it never cries, and may inherit property. Hitherto the English common law has held that the first cry legally constitutes life, and that a child which never cries is stillborn. From a medical standpoint, of course, it is primarily the heart-beat which renders a child living, since the fetus is alive while *in utero*. It is a matter of indifference whether oxygenation is obtained through the lung or the placenta. This decision, if sustained, will be of importance in future litigation concerning the reversion of estates falling to children stillborn or dying soon after birth.

FOOT AND MOUTH DISEASE.—Report from Baltimore on Jan. 10 states that a human case of foot and mouth disease has been discovered in a medical student of that city.

Statistics recently published in the January issue of the *Metropolitan* show that the latest European epizootic of foot and mouth disease originated in Russia in 1886.

"Four years later statistics collected in the German Empire showed that nearly half a million head of cattle, more than a quarter million of sheep and goats, and more than a sixth of a million of swine were victims of the disease. In 1871 the infection cost France over seven million dollars; in 1883 England stood a loss of five million dollars.

"Dr. Cope, of the British Board of Agriculture, said at the International Congress of Veterinary Surgeons at Baden-Baden: 'It is true that the foot and mouth disease rarely assumes a fatal character, but the fact that nearly all classes of animals on the farms are susceptible renders the indirect losses much greater in the case of foot and mouth disease than in rinderpest or pleuro-pneumonia, which only affect cattle. In my country, where it existed for at least fifty years, it caused enormous loss—greater than that of all the contagious diseases of animals combined.'

"Dr. Loeffler, an authority, says: 'Foot and mouth disease is spreading more and more every year, and every year it costs the German Empire enormous sums. Necessary measures had been taken with the greatest care; suspected grounds had been closely quarantined; this measure had been extended to whole communes, and even to entire districts; disinfection had been carried out

carefully, and, notwithstanding all this, the disease kept spreading.'

"For eight years England barred the importation of all cattle from countries where the disease was known to have a foothold."

EUROPEAN WAR NOTES.—It is announced that the Harvard Medical School will probably organize an expedition of surgeons, nurses and assistants to take charge of a ward in the American Ambulance Hospital at Neuilly (Paris). Similar expeditions have already been sent by the Jefferson Medical School and by Western Reserve University. To make the project possible a fund of \$10,000 must be raised, and if this can be done, it is hoped that the expedition may sail for France about the first of April.

Sir Frederick Treves has recently presented to the British Red Cross a report of his tour of inspection of its field hospitals in the north of France:—

"This report stated that the value and efficiency of British Red Cross work in France could be well gauged by a visit to the store-shed at Boulogne, by a study of the postings of the fleet of motor ambulances, and by the distribution of the surgeons, nurses, and orderlies in the employment of the Joint Committee.

"The store at Boulogne contained the infinite variety of articles that come under the heading of Red Cross supplies, and the huge depot is described as a model of efficiency. The fleet of motor ambulances Sir Frederick considers to be the most valuable form of voluntary service ever rendered to the Army Medical Department. The ambulances are working everywhere, bringing down patients and returning with stores for the wounded. In the saving of life, the lessening of suffering, and in securing prompt surgical treatment of the wounded, the ambulances have done a work the value of which can hardly be exaggerated. Their efficiency in removing the wounded from the hospital trains to the wards or ships is a revelation to those who have only seen horse or hand carriage in operation.

"The personnel of the Society is dispersed in many directions. Many surgeons are attached to the military and auxiliary hospitals, others are with motor convoys, or with trains or at rest stations. A few are with French troops.

"Valuable work is done at Boulogne by a British Red Cross voluntary aid detachment located in seven railway wagons standing in a siding. There is a dispensing store, a surgery equipped with all necessaries for an emergency dressing station, and a kitchen from which at any hour of the day or night tea or cocoa and other refreshments are supplied to the wounded passing through. Three fully trained hospital nurses are included in the staff, and they render innumerable little services to the wounded. As many as 2300 men have been fed in one day at this station."

On Jan. 16, the total of the New York Belgian relief fund amounted to \$841,645.82; the New York Red Cross fund to \$439,464.01; the American Ambulance Hospital fund to \$304,344.68; the Jewish relief fund to over \$300,000.00; the American Women's war relief fund to \$219,550; the Prince of Wales fund to \$103,513.88; and the Committee of Mercy fund to \$101,028.81.

On Jan. 17, the total of the New England Belgian relief fund amounted to \$177,999.93; the Massachusetts Red Cross fund to \$101,042.02; the Boston branch of the American Ambulance Hospital fund to \$50,996.45; the Boston Jewish relief fund to \$25,181.10; the Boston German relief fund to \$22,326.94; and the Boston Polish relief fund to \$11,734.21.

BOSTON AND NEW ENGLAND.

HOG CHOLERA IN BROOKFIELD.—Report from Brookfield, Mass., on Jan. 7 states that a valuable herd of Yorkshire swine in that town has been found to be infected with hog cholera, of which 10 swine have already died.

MASSACHUSETTS GENERAL HOSPITAL TRAINING SCHOOL.—The graduating exercises of the training school for nurses of the Massachusetts General Hospital were held in Boston on Friday evening of last week, Jan. 15. The principal address, by Miss Mabel T. Boardman, chairman of the national relief board of the American Red Cross, will be printed in a subsequent issue of the JOURNAL. Diplomas were awarded to a class of 54 nurses, two of whom presented graduation essays.

CASE OF TRYPANOSOMIASIS AT TEWKSBURY.—Report from Lowell, Mass., states that on Jan. 1 a patient died of trypanosomiasis at the Tewksbury State Infirmary. The patient was a native of Cape Verde Islands and removed recently from New Bedford, Mass., to Boston. His is the first recorded death from the disease in this state. He was thirty-five years of age.

MILK AND BABY HYGIENE ASSOCIATION.—At a recent meeting of the Boston Milk and Baby Hygiene Association, the directors' report stated that during the year 1914 the Association cared for 4097 babies. The total attendance at the weekly clinics for well babies was 19,673, an increase of 43% over that of 1913. The nurses made 41945 visits to the homes of patients in 1913, and 50,221 in 1914.

ROBERT BENT BRIGHAM HOSPITAL.—At a recent meeting, Dr. Robert B. Dixon and Dr. John E. Goldthwait of Boston were reelected members of the board of directors of the Robert Bent Brigham Hospital.

BOSTON DISPENSARY.—At a recent meeting of the medical staff of the Boston Dispensary, Dr. John D. Adams was elected president, Dr. Frederick C. Cobb, vice-president, and Dr. Elmer V. Barron secretary and treasurer.

A meeting is to be held under the auspices of the Dispensary at Hotel Tulleries on Thursday evening, Jan. 21, at which the principal address, "Dispensaries as a Growing Factor in Curative and Preventive Medicine," will be by Dr. S. Goldwater, health commissioner of New York City and formerly superintendent of Mt. Sinai Hospital, New York. There will also be addresses by Dr. Allan J. McLaughlin and Dr. Edward H. Bradford.

BOSTON HOMEOPATHIC MEDICAL SOCIETY.—At the annual meeting of the Boston section of the Massachusetts Homeopathic Medical Society, on Jan. 7, Dr. Frederick W. Colburn was elected president for the ensuing year. Dr. B. T. Loring was elected first vice-president; Dr. Frederika Moore, second vice-president; Dr. H. E. Diehl, secretary; Dr. Rudolph Jacoby, associate secretary; Dr. E. W. Smith, treasurer; Dr. W. O. Mann, auditor; Dr. O. R. Chadwell, Dr. E. S. Alderwood and Dr. F. R. Sedgley, censors.

BOSTON ASSOCIATION FOR RELIEF AND CONTROL OF TUBERCULOSIS.—A conference on communicable diseases and their relation to the handling of food was held under the auspices of the Boston Association for the Relief and Control of Tuberculosis on Tuesday of this week, Jan. 19, at the Twentieth Century Club, with Dr. Edward Otis as presiding officer. The following ten-minute addresses were presented:

"Dangers in Handling Food by Persons Affected with Communicable Diseases," Allan J. McLaughlin, M.D., state health commissioner; Harry Linenthal, M.D., state health inspector, Boston.

"Tuberculosis in Its Relation to the Handling of Food," Cleaveland Floyd, M.D., director of the patient clinic, Boston Consumptives' Hospital.

"Dangers from Syphilis," Abner Post, M.D., professor of syphilis, Harvard Medical School.

"Some Suggestions in the Employment of Labor," T. K. Cory, vice-president and store manager, William Filene's Sons' Co.; Henry Brahmans, secretary Central Labor Union.

The Association has recently issued a circular letter calling attention to its need for funds in continuation of its work during the coming year. Attention is also called to the Prendergast Camp, where 88 patients are waiting admission to the sanatorium; to the legislative work; the formation of an anti-tuberculosis league; co-operation with the Consumptives' Hospital in obtaining an appropriation to add 125 more beds in that institution; the distribution of 66,000 pieces of educational literature; illustrated lectures and exhibits in hospital clinics and fairs. A great amount of educational work is waiting to be done, and those who realize the importance of preventive measures for public health are asked to aid in the support of the Association.

Current Literature

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JANUARY 2, 1915.

1. *CHAPIN, H. D. *Are Institutions for Infants Necessary*
2. *HARRIS, L. T., AND OGAN, M. L. *Experiences of the New York Health Department in Typhoid Immunization.*
3. *ASH, J. E. *The Pathology of the Mistaken Diagnosis in a Hospital for Advanced Tuberculosis.*
4. *CARLSON, A. J. *Contributions to the Physiology of the Stomach. XXI. The Supposed Action of the Bitter Tonics on the Secretion of Gastric Juice in Man and Dog.*
5. *FRASER, J. *The Etiology and Pathology of Bone and Joint Tuberculosis.*
6. RYERSON, E. W. *Recurrent Spondylolisthesis, with Paralysis: Bone Splint Transplantation.*
7. *ADAMS, B. B. *The Causes of Scoliosis and Their Relation to Treatment.*
8. GUITERAS, G. M. *Plague in Havana.*
9. *NEW, G. B. *Cystic Odontomata.*
10. *IVY, R. H. *Mesothelial Tumors of the Jaws.*
11. RYTINA, A. S. *The Radical Removal of the Verumontanum, with Notes on Pathology.*
12. RANDALL, A. *The Endoscopic Treatment of Nocturnal Pollutions.*
13. CRAIG, C. L. *Anarthria Due to Syphilis.*
14. SCHMITTER, F. *Sprue Treated by Emetin Hydrochlorid.*

1. Chapin believes that large institutions for the care of infants are undesirable, that the infant has great need of individual care which can never be given in an institution; where the spread of infections, to which the infant is particularly susceptible, are liable. Boarding out with a trained nurse is the next most desirable condition to that of the home.

2. These authors again speak for the great value of anti-typhoid vaccination. They warn against giving it to pregnant women or during the menses. Severe reactions have never left permanent injuries. The vaccine is in no way an antitoxin but only a preventive. Chronic illness (tuberculosis, etc.), as well as debility from other causes, fatigue and exhaustion, predispose to severe reactions. Injections after intimate or long exposures hasten the onset.

3. Ash's paper bears a timely note of warning in regard to mistaken diagnoses in tuberculosis. The paper is of interest.

4. Carlson believes he has proved that the so-called stomachics or bitter tonics have no influence other than psychic or, increasing secretion of gastric juice.

5. This paper is a thorough and interesting review of this subject to date.

7. Adams' paper is a well thought out analysis of this subject.

9 and 10. These two papers are of very practical interest and are well illustrated by x-ray and pathologic plates.

12. Randall seems to have made a decided advance in detecting the pathology of these cases.

[E. H. R.]

THE LANCET.

DECEMBER 5, 1914.

1. *GOODALL, E. *The Croonian Lectures on Modern Aspects of Certain Problems in the Pathology of Mental Disorders.*

2. IREDELL, C. E. *A Case of Leprosy Treated with Radium and Diathermy.*
3. TAYLOR, S. *On Some Cases of Anomalous Fever.*
4. BENJANS, T. H. C. *Glycerine in Bromidrosis, with a Note on Military Acids.*

1. In the first Croonian Lecture, Goodall discusses certain aspects in the pathology of mental disorders. He discusses first the dementia precox group of cases and gives a general review of the findings of various observers of pathology, with particular reference to inoculation experiments and the presence of spirochetes and other organisms in the brain cortex. He takes up the subject of disorders of metabolism in insanity, and the value of thyroid administration in mental disorders and in epilepsy with insanity. He presents a very long and elaborate bibliography.

[J. B. H.]

DECEMBER 12, 1914.

1. *GOODALL, E. *The Croonian Lectures on Modern Aspects of Certain Problems in the Pathology of Mental Disorders. Lecture II.*
2. MAKINS, G. H. *Note on the Wounds of the Soft Parts Produced by the Modern Bullet.*
3. SCOTT, J. W. *Note on a Fatal and Exceptionally Intense Infection with Malaria (P. Falciparum).*
4. PRONGER, C. E. *Insomnia and Suicide.*
5. SIMPSON, W. J., AND HEWLETT, R. T. *Experiments on the Germicidal Action of Colloidal Silver.*

1. In the second Croonian Lecture, Goodall discusses the relation of the ductless glands to mental disease, and then considers constipation and other disorders of the gastro-intestinal organs as causes of auto-intoxication and their possible bearing in mental disorders. He devotes considerable time to the subject of leucocytosis in various mental disorders, especially dementia precox, epilepsy, and melancholia.

[J. B. H.]

BRITISH MEDICAL JOURNAL.

DECEMBER 5, 1914.

1. BLAND-SUTTON, J. *The Value of Radiography in the Diagnosis of Bullet Wounds.*
2. *LINDSAY, J. A. *The Threshold of Disease.*
3. *WILKIE, D. P. D. *Acute Appendicitis and Acute Appendicular Obstruction.*
4. SHIPLEY, A. E. *Leeches; Exotic Leeches.*
5. JUNG, C. G. *On the Importance of the Unconscious in Psychopathology.*
6. JONES, E. *The Significance of the Unconscious in Psychopathology.*
7. MACKENZIE, T. C. *Some Considerations Regarding Insanity in the Highlands.*
8. TURNER, W. A. *Epilepsy and Cerebral Tumor.*

2. Lindsay, under the very suggestive title, "The Threshold of Disease," discusses the early diagnosis of endocarditis, cancer of the stomach, disseminated sclerosis, and pulmonary tuberculosis, devoting special attention to the diagnosis of pulmonary tuberculosis. He discusses the various well-known methods and the less known modern methods of diagnosing this condition, and reaches a very sane conclusion that there is "no sure short cut to a summary diagnosis of incipient pulmonary tuberculosis at present available."

3. Wilkie discusses acute appendicitis and its relation to acute appendicular obstruction. It would seem to be a rather fine point further to subdivide cases of appendicitis in this way. He discusses in detail the various forms of obstruction and their causes.

[J. B. H.]

EDINBURGH MEDICAL JOURNAL.

DECEMBER, 1914.

1. *ROSS, J. N. MACB. *Some Observations upon Primary New Growths of the Mediastinum from a Study of Sixty Cases.*
2. *Collective Report. *Perforated Gastric Ulcer.*
3. FOWLER, J. S. *The Nutritive Diseases of Infancy: A Review.*

1. Ross gives an excellent study based on sixty cases of new growths of the mediastinum. Malignant disease of the mediastinum is not so rare as is generally supposed, whereas innocent tumors are very unusual. It is essentially a disease of early middle life, twice as common in males as in females, and seems to be increasing in frequency. A definite history is often found, and is commonly one of malignant disease. Though tubercle bacilli are rarely present in the sputum, there is possibly some relationship between pulmonary tuberculosis and new growths of the mediastinum. The anterior mediastinum is the common seat of origin. Lympho-sarcoma is the commonest form of the disease. The lungs are practically always affected sooner or later, and pulmonary symptoms are generally present. The right lung is much more frequently affected than the left lung; Extrathoracic metastases are very common and often very palpable. Pyrexia, if present, is due to some complication supervening upon, or caused by, the original condition. Microscopic examination of the sputum is rarely of value, although the persistent absence of tubercle bacilli in a case suggesting pulmonary tuberculosis is very significant. Hemoptysis, though moderately common, is rarely severe. A pleural effusion is often present, and is often hemorrhagic, but a hemorrhagic effusion is not pathognomonic of malignant disease. Examination of the fluid is rarely of diagnostic value. A large proportion of lymphocytes is quite as commonly found in a malignant as in a tuberculous effusion.

2. This article on perforated gastric ulcer is a collective report on a series of 247 cases treated in Edinburgh between 1896 and 1913. The data are presented in tabular form. There were 99 cases of gastric and 145 of duodenal perforation. The mortality was reduced from 70% during the period from 1896 to 1898 to 35% in 1909 to 1913. The majority of the patients were between 20 and 25 years of age.

In 146 instances, there was a previous history of indigestion or ulcer. The writers discuss the premonitory signs of perforation, the signs following perforation, and the site of the pain, vomiting, and the site of maximum tenderness and maximum resistance. The operative details and the exact position of the perforation and the conditions found on operation, are also described. Gastro-enterostomy was performed in 29 of the cases.

[J. B. H.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 40. OCTOBER 1, 1914.

1. RUBNER. *Popular Food-Supply During War.*
2. CZERNY, V. *Preparation in War Surgery.*
3. LEXER, E. *The Basic Principles of Present-Day War Surgery.*
4. *GROBER. *The Clinical Aspects of Bacillary Dysentery.*
5. *BLASCHKO, A. *The Prevention and Treatment of Venereal Diseases During War.*
6. HOFFMANN. *Naval Sanitation.*
7. SCHUSTER. *The Organization of a Proper Public Health Service During the War. Part II.*
8. MAMLOCK. *Medico-Military Problems. (Review.)*
9. LIEPMANN, H. *Psychiatry During the Russian-Japanese War.*
10. OBENDORFFER, E. *Letters from the Battle Front.*

4. Dysentery has always been associated with the epidemiology of war. It is a hand to mouth infection, usually transmitted by a carrier through foodstuffs or drinking water, and is not caused by one specific organism but a variety of bacteria belonging to the same group. The essential pathological condition is an ulceration of varying severity found in the large intestine and less often in the lower part of the small intestine and appendix. The disease may be mild or rapidly fatal. It usually begins as a diarrhoea which becomes increasingly severe. As many as one hundred and eighty-six stools a day have been noted. The discharges are a first faecal, then contain mucous, pus and blood. Accompanying them is tenesmus and flatulence. Fever is usually absent. The pulse is slow and of poor quality. The urine may contain albumin and casts. Death occurs from exhaustion and is usually sudden. Recovery is gradual, and relapses occur frequently. Good therapeutic results have been reported from polyvalent serum. This can be given intramuscularly or intravenously but is by no means specific. Aside from this, the treatment is symptomatic. Grober advocates the early use of cardiac tonics such as camphor and digitalis, and a rather liberal typhoid diet. Finally, rigid isolation and sterilization must be enforced.

5. Blaschko believes that efforts should be made to check venereal disease in the present war by two methods. Firstly men and women must be closely supervised. When disease is discovered the patients must be hospitalized and kept under supervision until they have recovered. Secondly, Blaschko advocates general education of the soldiers upon venereal diseases and their consequences. For this purpose he has written a small pamphlet for distribution. This states simply that the men under arms owe their lives and health to their country; venereal disease is incapacitating; women camp-followers are a constant menace to the soldier's health. If any venereal disease is contracted Blaschko urges the individuals to report themselves to the physician in charge. [R. F.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 46. NOVEMBER 17, 1914.

1. LIER. *Spirochetal "Rests"; the Abortive and Combined Treatment of Syphilis.*
2. CHILLARDITE. *Further Contribution to the X-ray Treatment of Hypertrichias.*
3. MASAY. *Fetal Infections.*
4. WIEDHOPF. *A Case of Meaglocolon in a Man of Seventy.*
5. FRIED. *The Treatment of Furuncles.*
6. *MEYER. *A New Apparatus for the Treatment of Writer's Cramp.*
7. *HOCHLAUS. *The Treatment of Tetanus.*
- 8, 9, 10, 11, 12. *ALEXANDER, KUHN, ROTHFUCHS, MÜLLER, AND KREUTER. *Articles on Tetanus.*
13. BAAYER. *Artificial Limbs.*
14. SCHNÉE. *A Clamp for Forcible Extension in Wounds of the Long Bones.*
15. HORTZ. *Wounds of the Nervous System.*

6. Meyer puts the hand in the proper position for writing and then makes a cast. This holds the hand in the proper position and prevents any spasm. This stiff glove is used until the tendency to contracture is over.

7, 8, 9, 10, 11, 12. Hochlaus reports his experiences in 46 cases of tetanus, and concludes by advising first the prophylactic use of serum, as powder in the wounds and subcutaneously; when tetanus is present the intraspinal and intravenous use, together with morphia and subcutaneous use of Mg.SO₄. Kreuter treated 31 cases entirely by intraspinal and intravenous use of large doses of serum, with a mortality of 35% as against other lists of cases showing 57 to 32% mortality. He says the magnesium sulphate and carbolic acid treatment are useless. Müller has seen very little result from the use of magnesium sulphate

and serum, although he uses serum right along. He found very hot baths to be a great help. In two cases he had relief from tracheotomy. Rothfuchs used salvarsan with benefit in four cases. Kühn used luminal, about 1 gm. per day. Alexander gave eight cases 10 gm. of chloral per day in a single day and all recovered; two with 5 gm. died. [E. L. Y., JR.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 40. OCTOBER 5, 1914.

1. VIRETOW, H. *The Position of Thoracic Organs in Extreme Kyphosis.*
2. KOHNSTAMM, O. *Interruption of the Mind and Cyclic Insanity.*
3. *MARCUSE, E. *The Roentgenologic Diagnosis in Stenosis of the Small Intestine.*
4. UNNA, P., JR. *New Experiences in the Treatment of Smallpox Pitting.*

3. Marcuse discusses the x-ray diagnosis of stenosis of the small intestine, with particular reference to the portions between the proximal loop of the jejunum and the terminal loop of the ileum. Filling defects, retention, and changed peristalsis are given as possible but not constant or pathognomonic signs. Emphasis, however, is focused on dilatation of the intestinal loop proximal to the stenosis, which gives an x-ray picture of a ball partly filled with fluid and partly with gas. These hollow balls may persist for 24 hours, and may be so pronounced that they may occasionally be seen without the use of bismuth. Small intestine air bubbles can be easily distinguished from gas in the stomach, duodenum, colon, penetrating ulcers of subdiaphragmatic abscess. The variety of stenosis cannot be accurately determined in the small intestine by this sign, because only the dilated and not the stenosed portion of the gut is seen.

[G. A. L., JR.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 41. OCTOBER 8, 1914.

1. *KOWARSCHIK, I., AND KEITLER, H. *Diathermia in Gynecological Disease.*
2. ROSENFELD, S. *Notifiable Infectious Diseases in Vienna.*

1. The authors cite fifty cases of gynecological disease treated by diathermia, with forty-two immediate cures. They believe, therefore, it has a place in the treatment of such cases. [F. S. K.]

No. 42. OCTOBER 15, 1914.

1. *PASSINI, F. *Lumbar Puncture in Chorea.*
2. ROSENFELD, S. *Notifiable Infectious Diseases in Vienna, Years 1901-1910.*

1. The author used lumbar puncture in five very severe cases of chorea. Three cases responded, two did not. [F. S. K.]

No. 43. OCTOBER 22, 1914.

1. *KRAUS, M. *Dentistry for the Wounded.*
2. ROSENFELD, S. *Notifiable Infectious Diseases in Vienna, 1901-1910.*

1. This article is a plea for immediate care of the teeth and pain in soldiers after wounds, and shows how much better the results are if done early than if done later after callus formation. [F. S. K.]

No. 44. OCTOBER 29, 1914.

1. *GLASER, O. *Chronic Veronal Poisoning.*
2. HERSCHMANN, H. *Psychic Changes Following Resuscitation After Hanging.*

3. INFELD, M. *Paradoxical Cerebral Hemorrhage from Trauma.*
4. JOACHIM, A. *Tuberculin Treatment in Progressive Paralysis.*
5. MÜLLER, H. *Case Histories of Two Paralyses of Musculo-Cutaneous.*
6. RAIMANN, E. *Hysteria.*
7. REDLICH, E. *Statistics on the Etiology of Nervous and Mental Disorders.*
8. REZNICEK, R. *Dermographism.*
9. WENBURG, L. *Late Gastric Tetanus.*

1. The author cites ten cases of chronic veronal poisoning. It results from continued use for some months. The symptoms are referable to the nervous system and the bowels and kidney action is depressed. [F. S. K.]

No. 45. NOVEMBER 5, 1914.

1. KRAUS, R. *Vaccination and Treatment of Typhoid.*
2. FINGER, F. *Veneral Disease and the War.*
3. FRANKL, O., AND KIMBALL, C. *Influence of X-ray on Mouse Tumors.*
4. ROSENFELD, S. *Notifiable Infectious Diseases in Vienna 1901-1910.*

No. 46. NOVEMBER 12, 1914.

1. *MARBURG, O. *Gun Shot Wounds of the Skull.*
2. v. HABUER, H. *Thirteen Gun Shot Aneurysms.*
3. BERNHEIMER, S. *Gun Shot Wounds of the Eyes.*

1. The authors conclude from thirty-three cases that in cases in which the bullet strikes at a tangent if there is evidence that the bone has been depressed operation is indicated. Operation is also indicated in cases in which the projectile enters direct and lodges close to the surface. Non-operation except for pressing symptoms is the better rule for deep-seated projectiles. If brain tissue is cut it indicates so generalized a process that non-interference is the rule. [F. S. K.]

No. 47. NOVEMBER 19, 1914.

1. RIEHL, M. *Treatment of Phlegmons in Continuous Bath.*
2. *ARZT, *Cholera and Cholera Vaccination.*
3. SUCHAUER, E. *War Phlegmons.*
4. HOSNA, E. *Comparative Meteorology at Sea Resorts.*

2. The author cites 25 cases of cholera. He treats the cases by rubbing the body with camphor during the cramps, injecting salt solution. After the first collapse he gives colus alba. Two cases seem to have been aborted by vaccination early. [F. S. K.]

DEUTSCHE ZEITSCHRIFT FÜR CHIRURGIE.

BAND 131. HEFT 1-6.

AUGUST-OCTOBER, 1914.

1. DRACHTER, R. *Cleft Palate and Its Operative Treatment.*
2. RICHTER, R. *Volvulus in Hour-Glass Stomach.*
3. TOREK, F. *Interpleural Pneumolysis: An Operative Procedure in Pulmonary Tuberculosis.*
4. MEITENS, G. *Anatomo-Technical Study on the Question of Pneumolysis.*
5. FALTIN, R. *The Knowledge of Pneumotosis Cystoides of the Intestines.*
6. KAWAMURA, K. *Experimental Studies on Pulmonary Extirpation.*
7. *WAGNER, A. *Cases and Operation of Obturator Hernia.*
8. BRANDER, M. *Observations on Juvenile Osteochondritis Deformans.*
9. JENCKEL, *The Pathology and Treatment of Acute Pancreatic Necrosis.*

10. *STIERLIN, E., AND VISCHER, A. L. *Surgical Observations on All Stages in the Serbo-Turkish War, 1912-1913.*
11. *OZAKI, Y. *The Bacteriologic Significance of the Secretions of the Skin Glands in Aseptic Surgery.*
12. *BOLOGNESI, J. *The Pathogenesis of So-called Bone Cysts.*
13. JIANU, A. *Oesophagoplastic.*
14. FISCHER, H. *Diabetes and Surgery.*
15. HARTTUNG, H. *Hemorrhoidal Knots in the New born, with a Contribution to the Etiology of Hemorrhoids.*
16. FRANKENTHAL, L. *Cystinuria and Cystin Stones.*
17. *SIMON, W. V. *Paraneuphratic Abscess.*
18. SCHUMKOWA-TRUBINA. *The Abderhalden Reaction in Carcinoma.*
19. KASPAR, F. *The Clinical and Surgical Treatment of Chronic Duodenal Ulcer.*

7. From Roth's surgical clinic at Lübeck, Wagner reports a case of obturator hernia, and discusses the various operative methods of treating this condition.

10. At the present juncture there is much timely interest in this article by two Swiss surgeons from Basel on their military surgical experiences during the recent Balkan war with Turkey.

11. As a result of bacteriologic experiments at Ito's surgical clinic in Kyoto, Ozaki expresses his conviction that after thorough previous disinfection of the bands, the sweat secreted on the skin surface affords no new source of infection.

12. From Remedi's surgical clinic at Modena, Bolognesi reports experimental investigations on the etiology of bone cysts, and discusses the various theories of their origin,—congenital, traumatic, inflammatory, specific, parasitic, systemic, and neoplastic.

17. Simon's article, based on 35 cases of paraneuphratic abscess treated in Küttner's surgical clinic at Breslau, presents a complete study of the material, with full case reports. [R. M. G.]

BULLETTINO DELLE SCIENZE MEDICHE.

OCTOBER, 1914.

1. *FORNI, G. *Observations on a Hundred Tumors.*
2. ROCCHI, G. *The Superficial Tension of the Blood in Experimental Intestinal Occlusion.*

1. This extensive article, by a worker in Martinotti's institute of pathologic anatomy at Bologna, constitutes a valuable monographic contribution to the study of neoplasms. [R. M. G.]

NOVEMBER, 1914.

1. *MONTANARI, A. *Experimental Stenosis of the Pulmonary Artery.*
2. BRINCANI, G. *Action of Salicylic Preparations on the Kidney.*

1. In this contribution to the study of the relation existing between hyperglobulia and congenital defects of the heart, Montanari concludes that it is possible to produce experimentally in rabbits stenosis of the pulmonary artery of notable degree. Such stenosis, he finds, is not accompanied by true hyperglobulia. [R. M. G.]

IL POLICLINICO.

SURGICAL SECTION.

OCTOBER, 1914.

1. UFFREDUZZI, O. *Separation of the Lower Epiphysis of the Femur, and Its Operative Cure.*
2. MOSTI, R. *Common and Simple Appendicocoele with Partly Adherent Sac.*

*SCALONE, I. *An Exceptional Indication for Plugging for the Cure of a Suppurative Lesion of the Thyroid, and the Use of Plugging in Modern Surgery.* (To be continued.)

NOVEMBER, 1914.

MAROGNA, P. *Clinical Considerations on Seven Cases of Renal Tuberculosis.*

*SCALONE, L. *An Exceptional Indication for Plugging for the Cure of a Suppurative Lesion of the Thyroid, and the Use of Plugging in Modern Surgery.* (Conclusion.)

BRANCATI, R. *The Gastro-Intestinal Ulcerative Effects of Experimental Resection of the Lumbar Sympathetic.*

AZARA, P. *Fever in the Ovaricetomized.*

FRATTIN, G. *Contribution to the Knowledge of Adenomata of the Sudoriparous Glands.*

2. Scalone presents the results of his experience in the surgical use of Beck's paste. The thyroid case reported was probably an instance of persistent thyro-glossal duct. [R. M. G.]

Obituary.

ALBERT VAN GEHUCHTEN, M.D.

DR. ALBERT VAN GEHUCHTEN, professor of the anatomy, pathology and treatment of diseases of the nervous system at the University of Louvain, Belgium, died of acute volvulus at Cambridge, England, on December 9, 1914. He was born in Belgium in 1861 and pursued his medical education in the laboratory of Professor Varnoy and at Berlin and Frankfort. His first publication was in 1886 on the structure of muscle cells, in which he advocated the theory of the unity of cell structure. In 1887 he returned to settle at the University of Louvain, where he had been appointed instructor of anatomy. In 1890 appeared his second publication, a study of the olfactory mucosa of mammals, in which he first definitely entered the field of neurologic research. From this time he published in rapid succession a series of brilliant investigations in his department of science. His neurologic publications have been divided into four groups, which are described as follows in the issue of the *British Medical Journal* for December 26:—

"The first, appearing between 1890 and 1896, embraces a series of important publications bearing for the most part on the structure of nerve centres—the olfactory bulb, the structure of the optic lobes, the nerve cells of the sympathetic nervous system, cerebrospinal ganglia, etc. In this group our present-day conception of the neuron was placed on an unassailable foundation, namely, that the neuron comprises a cellular body, protoplasmic prolongations for cellulipetal transmission, and an axis cylinder prolongation for cellulifugal transmission, both kinds of prolongation having a free termination, the

nerve conduction from one neuron to the other being affected by the contiguity of the end ramifications of the axis cylinder of one neuron to the protoplasmic prolongations of the neighboring neuron. The conception that the neuron appeared as an independent and fundamental unit was the solid basis upon which van Gehuchten built all his later researches on the true origin of nerves, and on the course of fibre bundles in the cerebrospinal axis. In 1897 began van Gehuchten's long and fruitful series of study on methylene-blue staining methods, a report on which he presented to the International Congress of Medicine at Moscow in that year. He found that this method was of greater value in the examination of the more intimate nerve structures and their modifications than that of Golgi, hitherto used, which had the disadvantage of being too coarse. Further research in this direction led to investigations on the phenomenon of chromatolysis, and all these investigations are important as forming the basis on which rested his study of the true origin of motor nerves. They gave rise to a number of works on nervous pathology, and were even applied to the complex study of organic lesions in mental affections, especially in dementia precox, and led to van Gehuchten's interesting discoveries on the pathological anatomy of dementia. He proved that the pathological process of rabies had a special predilection for the sympathetic spinal and cerebral ganglia, producing in the nerve cells of these ganglia primary modifications of a chromatolytic nature as well as secondary modifications due to the active proliferation of the endothelial capsule of the nerve cell, which leads to its destruction, and the formation of characteristic rabid nodules.

"The second group of publications, commencing in 1898, deals with the origin or termination of the peripheral nerves and the tract of certain bundles of neurons in the cerebrospinal axis, and, in these days of confused literature on the subject, form classic models by their compass, clearness and precision, as well as by the value and novelty of their conclusions. All these experimental researches, carried out by section, rupture, or more frequently by the extirpation of the nerve in rabbits, were corroborated by the study of comparative anatomy and embryology of the nervous system and by *post-mortem* investigations. Finally, by the discovery of a new method based upon the phenomenon of direct Wallerian degeneration, van Gehuchten gave an exactitude to the results of his studies of the intra-cerebral or medullary course of the motor nerves and certain central nerve tracts never hitherto attained. This indirect Wallerian degeneration was described by van Gehuchten in an exhaustive report presented to the international Congress of Medicine at Madrid in 1903. He showed that if, instead of dissecting a nerve it was torn out, degeneration followed not only of the peripheral but of the central portion of the nerve, such central degeneration being not

retrogressive but descending, like that of the peripheral portion, this being due not to the direct separation of the nerve itself, but to the atrophy of the cells from which it originated and fatally injured by this violent traumatism. Having identified by this new method each one of the peripheral nerves, Professor van Gehuchten extended his ingenious researches into the complex field of the acoustic and olfactory nerve tracts, the central connections of Deiter's nucleus, the superior cerebellar peduncle, the cerebrolular fasciculus, etc., with most brilliant results. We would especially mention in this connection his study on the inhibitive fibres of the heart, a problem which has puzzled many celebrated physicians, but resolved by van Gehuchten, who directly traced the connection of these fibres to the pneumogastric nerve instead of to the spinal accessory.

"The third group of publications deals with problems of nervous pathology, including studies on the central motor neurone of the pyramidal tract, on acute anterior poliomyelitis in the adult, on the pathogenesis of decubitus, on Babinsky's phenomena, on aphasia and syringomyelia. Of his work bearing on the pyramidal tract the most important is that concerning the mechanism and seat of reflex movement, in which he showed that tendon reflex is independent of muscular tonicity, that section or compression of the medulla is accompanied, not by increase of reflex movements, but by disappearance of both tendon and cutaneous reflexes."

The fourth group of publications includes a dozen anatomies and text-books on the nervous system.

Dr. van Gehuchten was a distinguished clinician as well as a laboratory scientist of eminence. He rendered particularly valuable work in the localization of lesions of the central nervous system. He suggested important methods in the surgical treatment of cerebral and medullary tumors and in trigeminal neuralgia. He also proposed, and successfully accomplished, a less complicated method of resection of the post-radical filaments instead of the posterior nerve roots. He was a brilliant teacher and investigator, and his premature death is a serious loss to science and to his unfortunate University.

Miscellany.

MEMORIAL RESOLUTIONS.

CHARLES SEDGWICK MINOT,
M.D., LL.D., D.Sc.

At the meeting of the council of the American Association for the Advancement of Science held in Philadelphia on December 29, a minute¹

was adopted in memory of Dr. Minot. The minute, which was presented by Professor Cattell and adopted by a rising vote, is as follows:—

"The council of the American Association for the Advancement of Science places on record its sense of irreparable loss in the death of Charles Sedgwick Minot and its appreciation of the value of his services to science, to education and to human welfare. Endowed with the best New England blood and traditions, trained there and in the schools of France and Germany, keen in intellect, wise in counsel, sure in action, sincere in friendship, he devoted his life to the advancement of science, the improvement of education, and the betterment of the agencies on which science and education depend. His contributions to embryology, anatomy and physiology gave him leadership in those sciences; his high ideals of education aided in advancing the standards of medicine in America and in placing the Harvard Medical School in its commanding position. Not only by his original researches, by his masterly books and by his fine addresses and lectures, but in countless other ways, he helped his fellow-workers in science—in the construction of microtomes; in the establishment of a standard embryological collection; in the improvement of bibliographical and library methods; in the unit system of laboratory construction, followed in the beautiful buildings of the Harvard Medical School; in the early development of the Marine Biological Laboratory at Woods Hole; in the Boston Society of Natural History, of which he was president for many years and until his death; in the Wistar Institute for Anatomy and Biology; in the administration of the Elizabeth Thompson Science Fund and the Bache Fund of the National Academy of Sciences; in international relations, as when visiting professor to Germany and in the foreign publication of his books; in the editing of *Science* and of journals of anatomy, zoology and natural history; in the founding and the conduct of the American Society of Naturalists and the Association of the American Anatomists; in the establishment of the convocation week meetings of scientific societies; for us especially by his leading part in the work of the American Association for the Advancement of Science, of which he was secretary of section, general secretary, twice vice-president, president, a constant member of the council, at the time of his death chairman of the committee on policy. In the American Association, as elsewhere, Charles Sedgwick Minot leaves a vacant place which can never be filled. We take up our work sadly in his absence; but we know that it will in all the years to come be more fruitful for the heritage of his service."

¹ Quoted from the *Annals of Science* for Jan. 8, 1915.

THEODORE WILLIS FISHER, M.D.

These resolutions on the death of Dr. Theodore W. Fisher were adopted at a meeting of the Boston Society of Psychiatry and Neurology:—

DR. THEODORE WILLIS FISHER, an original member of this society, was born in Westboro, May 29, 1837, and died October 10, 1914. He was educated in the schools of Medway and Wiliston Seminary and Phillips Academy of Andover, and graduated at the Harvard Medical School in 1861. He was a surgeon of the 44th Regiment in the Civil War. He was appointed superintendent of the Boston Lunatic Hospital in 1881 and resigned from that position in 1895. For several years he examined for the public institutions commissioner of Boston most of the insane committed to the state insane hospitals from that city, and saw many cases of mental disease in consultation. Later he was appointed lecturer in mental diseases in the Harvard Medical School. In the seventies, he was the leading expert in his branch in Boston and was frequently called on to testify as a witness in court. He was active in all matters concerning the welfare of the insane and earnestly advocated a new hospital for the insane of Boston. He largely planned the Danvers State Hospital and the buildings first erected by the Boston Lunatic Hospital at West Roxbury. He belonged to many medical societies and was president of this society in 1893.

He was the author of a number of papers. Among these was one entitled, "Was Guiteau Sane and Responsible for the Murder of President Garfield?" published in the BOSTON MEDICAL AND SURGICAL JOURNAL in 1888. He could speak with some authority on this subject as he was employed as an expert in the Guiteau trial. As showing his interest in medical progress, mention may be made of a paper he published in 1889 on "Cortical Localization and Brain Surgery," and another on "The New Psychology," in 1893. Until the last few years of his life, Dr. Fisher continued to be prominent as an energetic worker in the field of mental disease. Unfortunately for his co-workers, he became disabled and was obliged gradually to relinquish the duties which he had performed so well.

Resolved, That this society wishes to place on record its appreciation of the services performed for many years by Dr. Fisher as a progressive and active leader and teacher in the field of mental disease, and its regret that the last years of his life were rendered hard for him by incapacitating illness. It also wishes to record the loss it feels this society has sustained in the death of a faithful and valuable member and kind friend.

Resolved, That a copy of these resolutions be sent to the family and printed in the BOSTON MEDICAL AND SURGICAL JOURNAL.

WALTER CHANNING,
GEORGE T. TUTTLE,
EDWARD COWLES.

GEORGE DEXTER BULLOCK, M.D.

THE following memorial resolution was adopted by a rising unanimous vote at the latest regular meeting of the Norfolk South District Medical Society:—

GEORGE DEXTER BULLOCK was born in Taunton, December 6, 1859, and died in Weymouth, on his birthday, December 6, 1914. His elementary education was received in his native city, after which he entered the New Hampton Literary Institution, New Hampshire, in 1878, graduating from that institution in June, 1881. He then entered the Jefferson Medical College of Philadelphia, graduating in 1885. Two years later he began the practice of his profession in Weymouth. Dr. Bullock was the son of a physician, from whom no doubt, he inherited many of his nice ethical qualities, which he exhibited in his intercourse with his brother physicians. His successful twenty-seven years of practice in Weymouth were marked by love of his profession by his strict consideration for the rights of his brother practitioners, and his entire honesty with his patients. It could not have been otherwise, for he possessed the qualities of head and heart that are so essential to the fulfillment of such honorable traits. Dr. Bullock was a man of decided opinions, always adhering strictly to that which he thought was right. He was a man of kindly disposition, agreeable to meet, either as a physician or man, and absolutely true to his friends. Our sympathies go out to his bereaved family—widow and daughter—who will mourn him. The community in which he lived will miss him, and the South Norfolk District Medical Society will feel the loss of a valuable member.

J. C. FRASER,

E. N. MAYBERRY,

V. M. TIRRELL,

Committee.

ANGELL MEMORIAL HOSPITAL.

THE new building of the Angell Memorial Hospital for Animals, on Longwood Avenue, Boston, has been recently completed and informally opened, and will soon be occupied for work.

"The hospital is built around a central court for large animals, which enter by the front and are received and taken to various special rooms for appropriate treatment. Most of the novelties of the arrangement are on the first floor level, which is somewhat above the grade of the entrance roadway. The left-hand wing of this first floor is devoted to the offices of the agent and superintendent and the right of the main arched way is the entrance to the business office of the hospital and the clinic for small ani-

mals. The right-hand wing, next to the Harvard Dental School, and the rear wing are also given up to the treatment of larger animals. Midway of the right wing is the horse clinic, comprising an operating room and the soak stall room. This latter is a very important feature, tested by the experience of the Veterinary Hospital of the University of Pennsylvania.

"Operating facilities for large animals are exceptionally complete. One of the most interesting devices is the horse operating table, which consists of a huge tilting leaf of planks. The horse about to be operated upon is made to stand against this leaf in a vertical position and is securely strapped to the leaf, then the leaf is tilted over into a horizontal position, and there is the patient on a proper operating table. After the operation, the leaf or tilt, with the horse still strapped to it, is carried to the surgical ward, where the horse is unstrapped and slid off to a tan-bark floor, where he may recover at leisure from the anesthetic.

"In the middle of the rear wing are the medical wards, cut by brick walls into two sections which are subdivided into stalls. In the back left-hand corner is a roomy contagious ward and towards the front of this ward are two brick enclosed stalls for horses suspected of contagious disease. Still further towards the front of the building is a large tan-bark space 30 by 37 feet, where horses suffering from 'black water,' and some other troubles which lead them to kick may be allowed to lie out and thrash around at their pleasure.

"On the second floor of the wing are several wards for small animals and an exercise room, and in the right wing the operating room for small animals, the bacteriological laboratory, wards with cages for small animals, in the back right-hand corner a kitchen for small-animal food. An open corridor surrounds three sides of the central open court on this level, and not only furnishes more exercise ground but provides various effective ventilation through all the second floor rooms. Exercise yards for small animals have been provided on the roofs of the wings, which may later be raised by an additional story if the work of the hospital requires it. So far, provision has been made for horses and small animals; but the whole basement has been excavated so that there is ample room for dealing with hogs and sheep.

"In the central, or memorial portion of the building, the second story is occupied mainly by the offices of the president and treasurer, the library, and by the marble-paved central corridor, back of which is a memorial hall in which the names of contributors to the fund of the society will be preserved in large books mounted in cabinets. On the top of the central section is the publication department, and directors' room and committee and work room."

LARREY AT WATERLOO.

OF particular interest at the present time is the account of Baron Larrey, the great French Napoleonic surgeon, at Waterloo, and his subsequent treatment and care at Louvain, the history of which appears in *La Chronique Médicale*, written some time before the outbreak of the present European war. Professor Masoin of Louvain is the author of the communication.

"At a late hour in the terrible day of Waterloo, Baron Larry retired at the head of his small surgical force, when suddenly he found his retreat blocked by Prussian soldiers. Not knowing the strength of the column, the corps of physicians attempted to force a passage, but were hurled back by a solid wall of Prussians. The Baron's horse fell, wounded by a musket ball, Larrey receiving two sabre wounds, one on the head, the other in the shoulder, which rendered him unconscious. Coming to his senses after a time, he tried to crawl away, but was seized again by the Prussian cavalry, who subjected him to many brutalities and insults. The wounded Larrey's clothing was removed and his captors, noting its richness and the costliness of his accoutrements, thought they had captured Napoleon himself. Larrey was taken from post to post with this idea, finally being brought before a general who, recognizing the soldiers' mistake, was furious and ordered the unfortunate prisoner to be shot immediately. The firing squad was ready to do its duty, when a surgeon approached to blindfold the prisoner. Suddenly recognizing Larry, whose student he had previously been, the surgeon cried out it was impossible to put to death the great Larrey in such a manner. Evidently, his request for a reprieve was granted, for they set out on the march and Larrey was taken before General Bülow, who sent the prisoner on to the famous Blücher. This proved to be not only lucky for Larrey but resulted in his complete safety, as one of Blücher's sons had been saved by Larrey during a military campaign in Germany. An escort was given and Larrey sent to Louvain for treatment. Here he was under the care of Dr. Michotte, surgeon to the civil hospital, and of Dr. Hubert Vandepoël of the military hospital. The medal of St. Helen was later given to Dr. Vandepoël in recognition of his services to Dr. Larrey. Louvain was proud to have two of her surgeons care for and cure the battle wounds of the famous Larrey."

The first part of the account of Larrey's capture and journey to Louvain is well known to all, but the details of his treatment and stay in the city were, according to the article, not generally known before Professor Masoin's account. The latter's description is so graphic concerning Louvain and the war which caused Larrey's stay there, that one has for a moment a vivid idea that it must be of the present European struggle that one is reading, so nearly does history seem to have repeated itself.

INTRAVENOUS MEDICATION IN THE SEVENTEENTH CENTURY.

It is not generally recognized at what a very early date intravenous medication was practiced, but a recent article in *La Chronique Médicale* gives interesting light on this subject. In a work by Michel Etmuller, published in Amsterdam by Jean Aubie in 1691, the following occurs:

"For some time there has been a new method of introducing remedies into the body by injecting them immediately into the veins, which is known as infusion." He goes on, according to the article, to give the different reasons for which such treatment was given. "The English," said Etmuller, "were the first to practice this method, and it is probable that Voren, at that time a professor at Oxford, was the first to use the method. At the hospital at Dantzic the method was used also, and an intravenous infusion of scammony in guiae was given to a soldier with an inveterate syphilis with ulcerations of the legs and a tumor of the right arm. After the injection, he vomited, but in 24 hours the symptoms disappeared. The ulcers were healed in three days."

How like an account of the present intravenous use of salvarsan this recognized therapy of 220 years ago sounds.

Correspondence.

SURGICAL INSTRUMENTS FOR THE BELGIANS.

Boston, January 9, 1915.

Mr. Editor: I sent around recently to a number of the physicians of Boston a circular, asking for instruments, even of old style, and surgical supplies of any sort, for use on the fields of war and in the army hospitals, especially in Serbia, Russia, and Montenegro. I did this in the belief that even limited personal contributions might in the aggregate reach a number. In response to this appeal I have received quite a number of valuable instruments, some of the best of which were amputating sets and pocket cases, while others consisted of obstetrical forceps and instruments for eye, ear, and throat work, all of which, I am assured, are certain to be welcomed.

I am now writing in hopes that some physicians may be reached to whom the circular did not go, especially physicians in other portions of the state. I would add subcutaneous syringes, if in fair condition, and supplies of morphine or strychnia, heart stimulants, and especially anesthetics are greatly needed; also that if anyone to whose attention this letter may come is acquainted with relatives of physicians who have died, especially former army surgeons, I should be greatly obliged if their attention should be called to this need.

Whatever is sent will be sent promptly, as I understand the vessel is to sail quite soon.

Yours very truly,

JAMES J. PUTNAM, M.D.

WOMEN PHYSICIANS IN MEDIEVAL TIMES.

Boston, Jan. 6, 1915.

Mr. Editor: The following is from a prose translation of "Erec and Enide" by Chrétien de Troyes, among the best-known of old French poets of medieval times. Chrétien wrote in Champagne during the third quarter of the 12th century, 1160-1172. We know, that according to Witherington, in the early Middle Ages, the wounded soldier was first looked after by women.

"Guivret escorted Erec to a delightful, airy room in a remote part of the castle. His sisters, at his request, exerted themselves to cure Erec, and Erec placed himself in their hands, for they inspired him with perfect confidence. First, they removed the dead flesh, then applied plaster and lint, devoting to his care all their skill, like women who knew their business well. Again and again they washed his wounds and applied the plaster. Four times or more each day, they made him eat and drink, allowing him, however, no garlic or pepper. . . . But the damsels cheerfully and gladly showed such devotion in caring for him that, by the end of a fortnight, he felt no hurt or pain. Then, to bring his color back, they began to give him baths. There was no need to mistrust the damsels, for they understood the treatment well."

This poem was based on probable occurrences from Chrétien's knowledge of Arthurian legends and, if true, would certainly show a surprising amount of skill and knowledge for the times.

It is not generally known at what a very early date women took their place in organized medicine, for contemporary with the Lombard, Garloponus, 1050, we find the famous woman physician, Trotula, who occupied the chair of Gynecology at Salerno at this time.

Very truly yours,

WM. PEARCE COUES, M.D.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FROM DEC. 5, 1914, TO JAN. 9, 1915.

December 7, Surgeon J. S. Taylor, detached, *Illinois* to *Nebraska*.

December 8, P. A. Surgeon H. F. Lawrence, temporary duty, Newport Hospital.

December 9, P. A. Surgeon G. E. Thomas, detached, Naval Prison, to Navy Yard, Portsmouth, N. H.

December 12, Asst. Surgeon L. H. Roddis, detached, Marine Advance Base Expedition, Pacific Fleet, to Asiatic Station, via Transport sailing January, 1915.

December 14, P. A. Surgeon K. C. Melhorn, detached Advance Base Expedition, Pacific Fleet, Marines Mare Island, Cal.

P. A. Surgeon R. I. Longabaugh, detached, Third Regiment Marine, San Diego, Cal., to Regimental Headquarters, San Diego, Cal.

Asst. Surgeon L. Leherfed, detached, Marine Advance Base Expedition, Pacific Fleet, to Regimental Headquarters, San Diego, Cal.

P. A. Surgeon W. A. Angwin, to *Monterey*.

Asst. Surgeon P. B. Ledbetter, detached, *Pompey* to Olongapo Station.

Asst. Surgeon W. H. Massey, detached, Olongapo Station, to *Pompey*.

Asst. Surgeon C. S. Stephenson, to Naval Station, Cavite, P. I.

December 15, P. A. Surgeon W. H. Connor, detached, *Dubuque* to *Fulton*.

December 18, P. A. Surgeon E. W. Phillips, to Naval Hospital, Las Animas.

December 18, P. A. Surgeon E. V. Valz, detached, *Minnesota* to home.

P. A. Surgeon J. B. Pollard, to *Minnesota*.

December 22, Medical Director L. L. Von Wedekind, detached, *Solace* to home wait orders.

December 23, Medical Inspector R. M. Kennedy, detached, Naval Dispensary, Washington, D. C., to command *Solacc*.

Medical Inspector C. H. T. Lowndes, detached, Marine Barracks, Washington, D. C., to Naval Dispensary, Washington, D. C.

P. A. Surgeon J. Stepp, detached, Naval Dispensary, Washington, D. C., to Marine Barracks, Washington, D. C.

P. A. Surgeon D. G. Allen, detached, Fifth Regiment Marines to *New Hampshire*.

P. A. Surgeon H. Shaw, to Navy Yard, New York.

P. A. Surgeon L. Sheldon, detached, Naval Medical School, Washington, D. C., to Naval Dispensary, Washington, D. C.

P. A. Surgeon M. E. Rose, detached, Fifth Regiment Marines to Navy Yard, Charleston, S. C.

December 24, P. A. Surgeon E. A. Vickery, detached, Fifth Regiment Marines to Asiatic Station.

December 29, Surgeon W. Seaman, detached, Bureau of Medicine and Surgery, Navy Department to home and wait orders.

December 31, P. A. Surgeon W. A. Angwin, detached, *Monterey* to Naval Station, Cavite, P. I.

P. A. Surgeon Heber Butts, detached, *Wilmington* to *Monterey*.

P. A. Surgeon E. W. Phillips, detached, Naval Hospital, Philadelphia, Pa., to treatment, Naval Hospital, Las Animas, Colorado.

January 5, Surgeon W. Seaman, to Naval Station, Honolulu, T. H.

BELGIAN PHYSICIANS' RELIEF FUND.

Report of the Treasurer of the Committee of American Physicians for the Relief of the Belgian Profession for the week ending January 9, 1915.

Contributions:

E. G. M.	\$ 10.00
L. M. W.	5.00
A. T.	10.00
J. G. R. M.	25.00
J. C. T.	25.00
L. C. F.	10.15
E. T. F.	10.15
F. W. S.	10.00
G. L. H.	25.00
G. E. L.	5.00
E. E. K.	10.00
A. M. C. O.	100.00
D. S. M.	10.00
C. M. B.	1.00
M. C. M. S.	25.00
H. M. S.	10.00
E. H. M.	5.00

Total\$296.30

Disbursements None

Contributions previously reported.....\$662.50

Grand total\$958.80

F. F. SIMPSON, M.D., *Treasurer*.

APPOINTMENTS.

Dr. Simon R. Klein, professor of histology and embryology at Fordham University Medical School, has been appointed pathologist of the Norwich State Hospital for the Insane.

Dr. Louis Schapiro, of Milwaukee, Wis., has been appointed a member of the International Health Commission of the Rockefeller Foundation, to work in Costa Rica and northern Egypt.

NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The annual meeting of the Society will be held in Sprague Hall, Medical Library Building, on Monday, January 25, 1915, at 8.15 P.M.

MEMORIAL ADDRESSES.

"Dr. Charles Sedgwick Minot," Dr. Richard Clark Cabot.

"Dr. James Gregory Mumford," Dr. William Townsend Porter.

The annual business meeting will be held at 9 P.M. Members of the Suffolk District Medical Society are cordially invited to attend.

E. W. TAYLOR, M.D., *President*.

R. M. GREEN, M.D., *Secretary*.

SOCIETY NOTICES.

NEW ENGLAND PEDIATRIC SOCIETY.—The thirty-fifth meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, January 29, 1915, at 8.15 P.M.

The following papers will be read:

1. "Acidosis in Children," Arthur A. Howard, M.D., Boston.

2. "Parenteral Immunization in Conditions of Protein Sensitization," J. L. Goodale, M.D., Boston.

3. "Weaning—Its Relation to Anaphylaxis as Shown by Differential Blood Counts," H. C. Berger, M.D., Boston.

Light refreshments will be served after the meeting.

E. M. BUCKINGHAM, M.D., *Pres.*

R. M. SMITH, M.D., *Sec'y*.

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—The New England Hospital Medical Society will hold its annual meeting at Boston University, 688 Boylston Street, Boston, Thursday, January 21, 1915.

Business meeting at 7.30. Election of officers.

Lecture at 8 P.M., by Sarah E. Palmer on "Cathedrals of Southern England and of Northern France. Development of Gothic Architecture." Illustrated by original slides.

The annual banquet was dispensed with this year because of the money given by the Society to aid the relief of war refugees in Europe.

ANNA O'SULLIVAN, *Secretary*.

RECENT DEATHS.

DR. FRANKLIN M. COUCH, who died on January 10 at Dalton, Mass., was born in East Lee, Mass., in 1862. After graduating from Amherst College, he received the degree of M.D. from the New York Homeopathic Medical School in 1880. He had practised his profession at Dalton since 1885. He is survived by his widow and by one son.

DR. WILLIAM E. WALKER, of West Charleston, Me., died on January 1, 1915.

DR. LÉON VAILLANT, Professor in the Faculty of Sciences at Montpellier, has recently died at Paris.

DR. NATHANIEL MORTON RANSOM, a Fellow of The Massachusetts Medical Society since 1863, died of arteriosclerosis at his home in Somerville, Mass., January 8, aged 84 years. He was born in North Carver, Mass., on March 8, 1830. He was graduated from the Berkshire Medical College in 1861; lived first in Taunton, Mass., and for twenty-five years in Somerville. He was an ordained minister of the Advent church as well as a physician.

The Boston Medical and Surgical Journal

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Address

SCHOLARSHIP IN MEDICINE.*

BY THEOBALD SMITH, M.D., LL.D., BOSTON.

WE have come together this afternoon at the close of the day's work to show our appreciation for scholarship and renew our allegiance to the ideals for which it stands. The John Harvard Fellowship represents a kind of honorary degree of limited duration. We assume that the reasons for conferring this distinction will endure throughout the life of the recipient. In other words, we believe that the John Harvard Fellows are to become, in due time, ripe scholars.

Although no two of us may agree upon all the attributes of the genuine scholar of the present day, yet all of us, I am certain, look upon him as devoted to the intellectual life. He does not need to be a hustler, or organizer, or contractor of intellectual labor. The rule of business, not to do anything that some one else can be delegated to do, is not a safe maxim for him. His work, like that of the artist, bears the stamp of his personality. It becomes vitalized and it grows in his hands. It can never be too good for improvement.

The true scholar is probably not aware that he is exercising any leadership, for he is not a conscious leader. He is not the self-constituted head of a so-called school, for that suggests a too close adhesion to unproved doctrines, and is not infrequently exploited for personal and national aggrandizement. He is content with

placing his work on record and leaving it to its fate. The true scholar is not a partisan or advocate because the two or more sides presented by every question for due consideration are quickly detected by his periscopic vision, and he may see little to choose between them. He may at times become partisan to restore an upset equilibrium between contesting sides so that the actual facts may come into better view.

A mere display of absorbed knowledge does not make a scholar. He is not a passive creature. He is continually active in remaking old and creating new knowledge. There is a dynamic element in his make-up. Inactive erudition, often the badge of what has been called culture, is thrown off by him, as ballast is from a rising airship. Too much emphasis has been placed by educators upon the statement so often made, that a university should not teach anything that is useful, for it is apt to be misunderstood. The university teaches things not because they are not useful, but because like Emerson's weeds, their utility has not yet been discovered. The modern scholar, the product of the University, I would then define as one whose motto is the promotion of human welfare. He who in a purely scientific spirit and with the tools of pure science goes forth to struggle for the betterment of his fellowmen, is facing towards true scholarship. This definition will include the scientific worker in medicine. He has been brought into the company of scholars, and he is there to stay.

The young striving student of today may be somewhat discouraged at the seeming indifference and even disdain, manifested by many of his colleagues towards intellectual work. I ven-

* Address to the Students of the Harvard Medical School on the Occasion of the Presentation of the John Harvard Fellowships, Dec. 2, 1914.

ture to suggest several causes at work. The doors of our higher educational institutions are thrown open too wide and the competition between the intellectually fit and unfit has not been severe enough. Our indifferent and unfit students are like square pegs in round holes. They belong elsewhere. Access to educational privileges of the highest order is a very valuable consideration. It is being bestowed without insisting on a due return to society, which largely pays the bills. This cannot but degrade the privilege sooner or later. Another reason may be that human society has been surfeited with the achievements of the mind. We have been living in an age of wonders, due to patient research. Why should not the average man's appreciation become blunted for the time being? The worship of physical force, which has eclipsed scholarly tastes and which breaks forth with equal energy on the field of sport and the field of battle, may be due to the very creatures of intellectual labor, the huge machines of industry which replace the physical labor of giants.

The quiet, unobtrusive character of the thought which must precede all actual achievement conceals the real motive force behind the world's development. It is almost never the scholar who presses the button in order to let the accumulated energy which his researches have brought together, burst forth and perform their marvellous feats before spell-bound multitudes. He and his kind remain in the background and they usually prefer to remain there.

Bagehot, the English economist, quotes Pascal as saying that most of the evils of life arose from "man's being unable to sit still in a room," and he himself deserves quoting on this matter. "If it had not been for quiet people who sat still and studied the sections of the cone, if other quiet people had not sat still and studied the theory of infinitesimals, or other quiet people had not sat still and worked out the doctrine of chances, the most 'dreamy moonshine,' as the purely practical mind would consider, of all human pursuits; if 'idle stargazers' had not watched long and carefully the motions of the heavenly bodies, our modern astronomy would have been impossible, and without our astronomy, our ships, our colonies, our seamen, could not have existed." To sit still in a room, to study, and to think, are the necessary antecedents of the scholar. No wonder that scholarship is distasteful to many who are reaching for its fruits. It is an acquired habit, developed by and necessary to civilization. It is the cement that holds together the social structure. Without it society, which is now completely dependent on material welfare, would fall to pieces.

These and other reasons might be given for the not enviable position of intellectual work and the gross misconception of its true value among the youth of our country today. It was probably always so and will continue to be so.

Perhaps there is one function of the scholar which should be cherished above all others. It is to discover and tell the truth. In spite of our many and increasing agencies for disseminating information, it seems just as difficult as ever, to get at the truth about any given subject. It is not always palatable and has occasioned great disturbances. Many scholars have been compelled to fight and suffer for what they firmly believed to be the truth. Even today the scholar's truth is not always acceptable. He may suffer for revealing it, although in no such spectacular ways as history reports to us. We are just as averse to accepting new truths that do not fit our environment as were the people in earlier centuries.

The young scholar's difficulties are not, as a rule, with inquisitions and adverse criticism, either by his co-workers or the public at large. His chief difficulty is to get a hearing. In the first flush of his discovery of a fact he considers production identical with distribution. But he soon begins to wonder why his new fact travels so slowly. In due time he begins to realize that his discovery, his treatise, is having a struggle, all of its own, to survive among the mass that issues from the laboratory and the clinic. The best may be temporarily eclipsed and this fact should give courage when the first fruits have failed to reach the market. He may console himself with the fate of Mendel's discovery, which lay fallow for nearly fifty years. As time goes on he may find that his productions are not properly valued, some are overestimated, others underestimated, still others wholly disregarded. He should not be disappointed, however, but bear in mind that his work will eventually find its proper level. Its true specific gravity will sooner or later decide its fate.

The scholar's rewards will always be small. The distinguished men who have gone before have not been in the habit of thinking of themselves, and this habit should not be encouraged. In the future ideal state of society when we will be doing our tasks instinctively, when we will say with Luther "I can do nought else, God help me," we shall not be thinking much of ourselves.

But let us return to the John Harvard Fellow in Medicine and speculate a little about his future work. Is it expected of him that he go out of his way and become distinguished for exploits far away from the bedside and the laboratory? Shall he become a prominent literary figure, a historian, or an authority in a non-related science? Undoubtedly, success in these fields will earn for him the name of scholar, but he would not necessarily be a medical scholar. Some have attained the mastery in two distinct subjects, but as a rule one languishes. Today medicine is so inclusive that few may venture into other fields without forfeiting their allegiance to it. I would, therefore, define my ideal of the scholar in medicine as one who makes medical science or

biology, which includes medicine, the foundation of all his undertakings.

I take it for granted at the outset that the John Harvard Fellow is going to do some thing well; that he is going to fit himself to be a part of the great engine of medicine which is doing so much work today for human welfare. This is only a fundamental demand upon all of us to find our place in human society and not to become unadaptable fragments, increasing by so much the already formidable human scrap heap. In our profession, to use a well-known quotation, "The knowledge which a man can use is the only real knowledge, the only knowledge which has life and growth in it and converts itself into practical power. The rest hangs like dust about the brain or dries like raindrops off the stones."

But the scholar in medicine must be more than fundamentally serviceable as a part of a great machine. He must be in touch with all its parts. His horizon must encircle all the activities of medical science. He must be more than aware of the existence of other specialties than his own, and bring to his colleagues sympathy and a strong desire to assist and to accept assistance. The more snugly adjusted and useful he becomes in his own specialty, the more cognizant he must become of the essential importance of other specialties. He must make use of this circumspect knowledge and become constructive. Without master minds, medical specialties are but *disjecta membra*, and medicine a chaos.

After these necessary preliminaries have been satisfied, the real task of the scholar in medicine begins, for the test of scholarly work is that its influence radiate beyond the confines of the special field of his immediate life-work, that it penetrate outward and into human society, that it contribute something to the spiritual and social betterment of his fellow men. More than once have I heard it said by men in private and in public, that their hopes for human society were centred in the vital disclosures of biological and medical research. Each scholar must try to find this major problem for himself, and in the choice and the solution his rank will reveal itself. It must be interpretative, illuminative, and not merely executive work. It must give us theories, creeds, and ideals for human behavior and activities. It must build biological facts and theories out over the depths of human superstition, ignorance, and prejudices, so that we may find the place for the next pier on which to rest human activities that aim toward a complete bridging of this chasm. This I interpret to be the true meaning of ripe scholarship.

Is medicine, which I use here as a term inclusive of all biological research, too narrow to carry on this work?

It is now over half a century since Herbert Spencer made an attempt to build up sociology on biological principles. Economists and sociologists have regarded the result as disappointing. I am inclined to suggest to the scholars in medicine of the immediate future. Why not

take up Herbert Spencer's work? We need today more than ever, some constructive, generally acceptable theory of social organization and government, of the relation of the individual to the whole; of the relative meaning of environment and heredity, of the significance of nations as great groups of units to one another. Have not these problems been solved for us, not once, but many times in the organization of man and the lower animals? The student of medicine is well equipped, for he is studying one of the greatest achievements of coöperative activity. Is there any state, any commonwealth, which holds within itself such profound information on fundamental principles of organization and administration as does the commonwealth of cells, called the human body? Is there any that has been studied so profoundly? The many totally distinct, but inter-communicating groups of units, the intricate mechanism of adjustment between near and distant parts, the checks and counterchecks that maintain due equilibrium of function and repress undue individualistic growth, the economy of effort, the remarkable utilization of energy and many other phenomena of government are being disclosed. May not the scholar in medicine help in giving us as units of the social organism a due appreciation of the identity of the problems involved in both biological and social evolution?

It is one of his special tasks to show us the significance of the great practical work our profession is doing in preventing disease and saving life. He must show us both sides of this great work,—not only its humanitarian aspect, but also its one-sidedness, and teach us what is needed to supplement it so that it may be of real and lasting value. Nothing should escape his analysis and criticism of what is going on in the medical world, so that medicine may continually adjust and readjust its own work to changing social conditions. May he not as a student of a subject which is rapidly learning to replace the treatment of symptoms for a study of the underlying causes or necessary conditions, give us without fear or favor the sequences leading to great human catastrophes or diseases of the social organism like the one we are now passing through?

I am led to this suggestion of a more intimate relation between biological and social sciences because great discoveries which give a new direction to currents of thought and research are not, as a rule, gained by the accumulation of vast quantities of figures and statistics. These are apt to stifle and asphyxiate and they usually follow rather than precede discovery. The great discoveries are due to the eruption of genius into a closely related field, and the transfer of the precious knowledge there found to his own domain. It is not so very long ago when medicine paid but little attention and less respect to the unusually rich field of animal life as a source of information. Today, every department of medicine fills its available working spaces with ani-

mals which are the subject of profound study. The results have revolutionized human medicine within a generation.

I have a firm conviction that the laws governing life are the same whether applied to ourselves as great biological organizations or our still greater social organism. My only fear is that we do not yet know enough of these laws to become trusted advisers in social evolution and regeneration. The task is, therefore, great enough to occupy many a John Harvard Fellow of the future, if he be inclined to assume it. With it before him, he would not be tempted to live a life of double dilentanteism, but a single purposeful existence, because his two-fold task would be really one.

Original Articles.

A STUDY OF NORMAL-LOOKING BRAINS IN PSYCHOPATHIC SUBJECTS.

THIRD NOTE (BOSTON STATE HOSPITAL MATERIAL).*

By E. E. SOUTHWARD, M.D., BOSTON.

Pathologist to State Board of Insanity, Massachusetts; Director of Psychopathic Hospital, Boston; and Bullard Professor of Neuropathology, Harvard Medical School, Boston,

AND

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FOLLOWING is a third fragment of the study now in progress of the brain side of the so-called functional psychoses. Functional psychoses ought to be such that the brains would show nothing that should not be there, nothing not quite "physiological," nothing not essentially reversible and capable of return to the *status quo*. In order to study functional psychoses, we, strictly speaking, need to find cases without intrinsic brain changes. In the midst of the host of intrinsic and extrinsic changes which a majority of brains in psychopathic subjects shows, it has proved difficult to secure an irreproachable functional series. The more exact and finical the brain examination, the harder is it to secure "normal-looking" brains, although the "changes" and "anomalies" found may have had nothing to do with the particular psychopathy of the given case.

* Being Contributions of the State Board of Insanity, Number 25 (1914). The communication was read in abstract at the meeting of the Norfolk District Society in April, 1914. (*Bibliographical Note*. The previous contribution was by Dr. A. W. Stearns (1914-14), entitled "Out-Patient Work in Massachusetts State Hospitals for the Insane," BOSTON MED. AND SURG. JOUR., Vol. cxcv, November 5, 1914.)

The percentages of normal-looking brains in the series so far studied are as follows and may be considered as roughly true in consideration of the anatomical criteria prevalent in the different laboratories.

Worcester ¹	249	741
Taunton ²	70	450
Danvers ³	235	1000
Westborough ⁴	73	500
	627	2691

To these percentages may be added that of the Monson State Hospital (for epileptics).

Monson ⁵	76	205
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We wish to communicate the results of an examination of 153 brains at the Boston State Hospital, in which there was, if you please, an intentional bias—a bias towards the Danvers standards of counting all suspicious findings among "abnormalities." We need not repeat that we do not suppose that all the abnormalities found in the majority of this or any other series are directly correlatable with the psychopathic status of the subjects which carried the brains. What we are investigating is the normal-looking residuum.

Among these 153 were found 20 brains of a normal appearance, *i.e.* brains showing no destructive lesions, atrophic, cystic, or otherwise, and no sclerosis (in the sense of tissue induration or gliosis, regarded as of pathological nature). Some cases of basal or other arteriosclerosis and some of chronic meningeal change were counted as normal-looking, because upon careful search no sign of *substantial* brain change could be found.

Adhering in general to Kraepelinian lines in diagnosis, we find these 20 distributed as follows:—

Endogenous deteriorations (dementia precox)	2*	(xix, xx)
Manic-depressive group (3 involution cases included)	6	(xiii-xviii)
Senile and allied organic psychoses ..	4	(vii-x)
General paresis	1	(i)
Symptomatic psychoses	2†	(xi, xii)
Epileptic psychosis	1	(v)
Alcoholic psychoses	2	(iii, iv)
Central neuritis	1	(ii)
Syringomyelia	1	(vi)
	20	

Dementia precox forms (10 cases) almost 7% of the total B. S. H. series (153 cases); it forms 10% of the *normal-looking* series. One brain in five dementia precox brains is normal-looking.

Manic-depressive psychoses (involutional cases included) form (12 cases) about 8% of the *total* series; they form 30% of the *normal-looking* series.

Senile psychoses (with some allied forms) form about 29% of the *total* series; they form 20% of the *normal-looking* series.

* Possibly 3, owing to the possible inclusion of xii.

† Possibly 1, if xii be transferred to dementia precox.

In order to secure, if possible, a *microscopically* normal set of cases—cases not merely normal-looking in the gross, but normal-looking with the microscope—some orienting studies have been made with the microscope. These studies have permitted already the solution of some problems.

I. *Normal-looking brain in general paresis (five months' duration of symptoms)*. Microscopically characteristic (plasma-cells about cortical vessels, cell-losses, gliosis) in various areas. Summary follows (details, clinical and structural to be presented in another "note" in this series).

B. S. H. 10,891. Path. (1912.55). Male. Age at onset and death, 53.

Duration of mental disease, 4 months, 27 days.

Mental disease, *continuous*.

Diagnosis. Never in doubt (Psychopathic Hospital, Boston State Hospital).

Terminal Illness. Bronchopneumonia.

Trunk—Chronic Changes. Trichina spiralis, pleuritis, pericarditis.

Trunk—Acute Changes. Hemorrhage in mesentery, bronchopneumonia, bronchial lymph nodes.

Body length—172 cm. *Brain weight*—1270 grams (Tigges' formula—1376 grams).

Lymph Nodes. Not notable.

Ductless Glands: Pituitary, edematous; adrenals, one diffusely red; testes, do not thread well.

II. *Normal-looking brain in central neuritis (six weeks' duration of symptoms)*. Microscopically characteristic (numerous axonal reactions in various areas) but perhaps not a pure case (since the nerve-cell changes were not all of the axonal type and indeed some seemed to show an admixture of cell-lesions). Southard and Hodskins,⁶ as well as Gay and Southard,⁷ had offered some evidence to show an association between the clinical entity called "central neuritis" and softness of brain. Gay and Southard went so far as to suggest that bacillus coli communis infections of blood or cerebrospinal fluid might be at the basis of the soft brain. Canavan and Southard,⁸ in a paper now in press, found in another series that bacillus coli communis failed to be associated with soft brain, but they found other bacteria capable of splitting laboratory media or of abstracting water from such media.

The present case, as the protocol would show, did *not* exhibit a soft brain; but the brain was described as "tense"—feeling and as entirely filling the dura mater, being especially prominent in the central region (brain weight 1350 gms.). The frontal portion of the pia mater was slightly hemorrhagic, and all the spinal root ganglia presented a curious and unusual appearance of hemorrhage.

Culture from the cerebrospinal fluid yielded bacterium capsulatum (capsule bacillus of Pfeiffer), an organism of the aerogenes group. The blood was sterile. Culture from bronchial lymph node yielded micrococcus aureus and micrococcus roseus.

The total course of symptoms in this patient (44 years of age) was 6 weeks. There is certainly a fair question of the diagnosis. Perhaps the root-ganglion hemorrhages acted to produce reflexly the characteristic movements which are more usually found in "central neuritis."

The histological examination of the hemorrhagic root-ganglia shows hemorrhages in spaces of the dura mater adjacent to the ganglia and small hemorrhages in the peridural fatty tissue. There are no evidences of acute inflammation in the dura mater or fatty tissue. Minute vessels within the proximal portion of the dorsal roots show endothelial nuclei of vesicular and slightly swollen appearance, with at one point a moderate number of mononuclear cells of a vesicular appearance in the adventitia. There are no good examples of lymphocytes in the tissue.

If the clinical phenomena are to be at all related to these peripheral changes, it would seem that they must be largely due to mechanical pressure changes, unless we are to interpret the very slight endothelial changes in the small vessels as toxic.

The Marchi sections show fat in cells within the hemorrhage, but do not show evidences of fat in the nerve fibers.

This case evidently deserves more particular study. For completeness' sake we present data as in other cases of this series.

B. S. H. 12,018. Path. 1913.44. Female. Age at onset and death, 44 years.

Duration before admission, 1 month and 14 days.

Hospital Residence. One day.

Diagnosis. (Melancholia (?))—by outside physicians. (Central neuritis, Boston State Hospital.)

Continued mental illness.

Terminal Illness. Acute interstitial nephritis?

Bacteriology. Heart's blood, negative.

Cerebrospinal Fluid. Bacterium capsulatum.

Bronchial Lymph Node. Micrococcus pyogenes aureus and micrococcus roseus.

Trunk—Chronic Changes. Pleuritis (right) sclerosis of coronaries and aortic valve. Fatty liver, fibroma of uterus.

Trunk—Acute Changes. Hypostatic pneumonia, peribronchial lymphnoditis, follicular colitis, interstitial nephritis.

Body Length—152 cm. *Brain Weight*—1350. (Tigges' formula 1216.)

Lymph Nodes. Peribronchials enlarged.

Ductless Glands: Pituitary negative; thyroid small; adrenals thin. Ovaries firm.

III. *Normal-looking brain in Korsakoff's (alcoholic) psychosis (ten weeks' duration of symptoms)*. *Erroneously diagnosed general paresis*. The erroneous diagnosis was at the Psychopathic Hospital, whose officers chose to discount a negative Wassermann serum test and a negative cytological examination of the liquor cerebrospinalis, and trusted to certain suggestive mental symptoms and reflex-disorders. Upon transfer to the Main Hospital, the case was diagnosed Korsakoff's psychosis, on the basis of the following findings: Pupils unequal, re-

acting to light within narrow limits, and are irregular in outline. Knee jerks, right more lively than left; trouble in locomotion; restlessness; hunger; untidiness; fabrication and miscalling of bystanders.

B. S. H. 11.226. Path. 1913.6. Male. Age at death, 44.

Duration. Two months, 14 days.

No previous attacks.

Terminal Illness. Sudden death, choking and vomiting.

Bacteriology.—Heart's blood negative.

Cerebrospinal Fluid. Cladothrix invulnerabilis.

Trunk—Chronic Changes. Fibrous pleuritis, epicarditis, sclerosis coronaries, endocarditis, aortic sclerosis, pulmonary tuberculosis. Horse-shoe kidney.

Trunk—Acute Changes. Ileitis, injection duodenum.

Body Length—168 cm. *Brain Weight*—1450. (Tigges' formula 1344.)

Lymph Nodes. Negative.

IV. *Normal-looking brain (over-small?) in delirium tremens (five weeks' duration of symptoms) erroneously diagnosed as general paresis, tabetic form.* Microscopic examination showed numerous acute cell changes, but no evidence of general paresis.

It is probable that this brain, weighing but 1010 grams as against a weight calculated by Tigges' formula (8×151) (the body length) of 1208 grams, should be regarded as either hypoplastic or atrophic.

B. S. H. 9.981. Path. (1911.11). Female. Age at death, 35.

Duration of Mental Illness. One month, 4 days. Continuous mental disease.

Diagnosis. Taboparesis (erroneous).

Bacteriology. Heart's blood, streptococci. Cerebrospinal fluid, negative. Right middle ear, bacterium aerogenes group. Mesenteric lymph node, negative.

Trunk—Chronic Changes. Decubitus. Splanchnoptosis, ascites, cystic oöphoritis, epicarditis, hypertrophy of heart. Healed pulmonary tuberculosis, chronic interstitial nephritis, chronic ileitis, uterine growth.

Trunk—Acute Changes. Hemorrhagic-oöphoritis, acute diffuse nephritis, injection lower lobes of lungs.

Lymph Nodes. Mesenteric enlarged.

Ductless Glands. Pituitary negative. Thyroid very small. Ovaries—one cystic, one hemorrhagic, adrenals normal.

Body Length—151 cm. *Brain Weight*—1010 grs. (Tigges' formula 1208.)

V. *Normal-looking brain in epileptic psychosis.* (Epilepsy since infancy, dementia from 18+, death at 38.) Microscopically, numerous cell losses,—not here further considered.

B. S. H. 4810. Path. (1911.26). Male.

Diagnosis. Epilepsy.

Terminal Illness. Bronchopneumonia.

Trunk—Chronic Changes. Emaciation, hypertrophy of heart, decubitus.

Trunk—Acute Changes. Bronchopneumonia, congestion kidneys.

Lymph Nodes. In left groin enlarged.

Ductless Glands. Pituitary, thyroid, adrenals negative, testes negative.

Body Length—150 cm. *Brain Weight*—1460 grs. (Tigges' formula 1200)

VI. *Normal-looking brain in a syringomyelic subject with mental symptoms.* (Special study to be published shortly by Dr. H. I. Gosline.)

B. S. H. 9445. Path. (1911.31). Male. Age at onset of mental symptoms, 39 years. Age at death, 43 years.

Duration of Mental Disease. 42 months, 27 days. Mental disease uninterrupted.

Diagnosis. Organic dementia or general paresis.

Terminal Illness. Acute vegetative endocarditis.

Trunk—Chronic Changes. Decubitus, pericarditis, endocarditis, aortitis, fatty hepatitis.

Trunk—Acute Changes. Acute vegetative endocarditis.

Body Length—162 cm. *Brain Weight*—1355 grs. (Tigges' formula 1296 grs.)

Lymph Nodes. Not enlarged (bronchial).

Ductless Glands. Pituitary, thyroid, adrenals, negative. Testes negative.

VII-X. *Four normal-looking brains in Senile Psychoses.* The microscopic examination of all four, so far as completed, exhibits obvious cell-losses, although three of the brains are considerably overweight, and two of them markedly so.

B. S. H. 9314. Path. (1911.32). Female. Age at onset, 64. Age at death, 66.

Duration. 25 months, 10 days.

Continuous mental disease.

Diagnosis. Senile dementia, senile psychosis (presbyophrenic type).

Terminal Disease. Chronic interstitial nephritis, cardiac hypertrophy and general anasarca.

Bacteriology. Heart—micrococcus xanthogenicus, micrococcus varians, micrococcus rubescens. C.S.F.—micrococcus xanthogenicus, micrococcus luteus, micrococcus rubescens, micrococcus simplex.

Retroperitoneal Lymph Node. Micrococcus pyogenes aureus.

Trunk—Chronic Changes. Slight emaciation, ascites, periappendicitis, hydropericardium, myocarditis, endocarditis, apical tuberculosis (healed), pleuritis, nephritis, perihepatitis, gall stones, passive congestion liver.

Trunk—Acute Changes. Absent.

Lymph Nodes. No change.

Ductless Glands. Pituitary, thyroid, negative; adrenals negative, ovaries cystic.

Body Length—164 cm. *Brain Weight*—1340 grs. (Tigges' formula 1312).

B. S. H. 10.500. Path. (1912.37). Female. Age 71.

Duration of Mental Disease. Seven months, 19 days. Mental disease continuous.

Diagnosis. Senile psychosis.

Terminal Illness. Bronchopneumonia.

Trunk—Chronic Changes. Emaciation, adhesive pleuritis, bronchiectasis, brown atrophy of heart, chronic interstitial nephritis, myoma of uterus, hepatic atrophy, splenic atrophy, arteriosclerosis.

Trunk—Acute Changes. Streptococcus septicemia.

Ductless Glands. Adrenals large.

Body Length—153 cm. *Brain Weight*—1380 grs. (Tigges' formula 1224 grams.)

B. S. H. 10,192. Path. (1913.16) Male. Age at onset, 75. Age at death, 77.

Duration. 21 months, 21 days.

Diagnosis. (Senile psychosis with delusions and deterioration.) (Cerebral arteriosclerosis.)

Terminal Disease. Gangrene of lung and arteriosclerosis.

Bacteriology. Heart's blood micrococcus tenacatus. Cerebrospinal fluid, bacillus formosus.

Trunk—Chronic Changes. Elephantiasis? decubitus, ascites; sclerosis mammary, coronary arteries; thrombosis mesenteric veins; pleuritis, aortitis, healed pulmonary tuberculosis, renal lithiasis, hepatic cysts, hypertrophy of prostate, lipoma.

Trunk—Acute Changes. Fibrinous pleuritis, gangrene of lung, hemorrhages in spleen.

Lymph Nodes. Perioesophageal lymph nodes enlarged. Peribronchial lymph nodes enlarged.

Ductless Glands. Pituitary, adrenals negative.

Body Length—137 cm. *Brain Weight*—1440 grs. (Tigges' formula 1096 grms.)

B. S. H. 10,241. Path (1911.42). Female. Age at onset, 77. Age at death, 80.

Duration—36 months, 22 days.

Continuous mental disease.

Diagnosis. Senile psychosis, simple deterioration.

Trunk—Chronic Changes. Emaciation, edema, decubitus, periappendicitis, perihepatitis, sclerosis majority of vessels. Hypertrophy heart, endocarditis, pulmonary tuberculosis, interstitial nephritis, fibromata of uterus.

Trunk—Acute Changes. Hemorrhagic ascites.

Ductless Glands. Pituitary negative, thyroid small, adrenals plump and large.

Body Length—140 cm. *Brain Weight*—1125 grs. (Tigges' formula 1120 grams.)

XI. *Normal-looking brain in an exhaustion-psychosis of unknown but brief duration.* Orienting microscopic examination of the two prefrontals, superior parietal and calcarine areas, showed cell losses characteristically in the outer layers, but also to some extent in inner layers. The most marked cell losses appear in prefrontals and left superior parietal area. It seems hard to explain these findings on the basis of a lesion of brief duration unless at times a brief or critically acting agent may kill cells in such wise as to provoke little or no neuroglia reaction.

B. S. H. 10,284. Path. (1912.7). Male, aged 43. Age at onset, 42. In Hospital 2 months, 25 days.

Duration before admission, unknown.

Diagnosis. Exhaustion psychosis.

Terminal Illness. Pulmonary tuberculosis.

Bacteriology. Heart's blood, micrococcus cummulus. Cerebrospinal fluid, micrococcus ovalis.

Trunk—Chronic Changes. Sacral decubitus, chronic periappendicitis, sclerosis coronaries, hypertrophy heart, interstitial nephritis, atrophy of liver.

Trunk—Acute Changes. Bronchopneumonia.

Ductless Glands. Adrenals fat. Pituitary edematous. Undescended testicle.

Lymph Nodes. Mesenteric lymph nodes prominent.

Body Length—141 cm. *Brain Weight*—1550 grs. (Tigges' formula 1128 grams.)

XII. *A doubtful case of paranoiac nature, complicated by toxic features.* The orienting sections showed only slight and focal cell losses in the cortex, and for the rest only various marked evidences of cell disease without cell destruction.

B. S. H. 10,416. Path. (1912.41). Female. Age at onset, 50? marked at 59. Age at death, 60.

Duration of Mental Disease. 127 months, 27 days. Mental disease continuous.

Diagnosis. Paranoiac condition. (Toxic?)

Terminal Illness. Pulmonary tuberculosis.

Trunk—Chronic Changes. Emaciation, visceral peritonitis, pleuritis, pulmonary tuberculosis, pericarditis, hypertrophy of heart. Tuberculosis of intestine (ulceration) perioöphoritis.

Trunk—Acute Changes. Thrombus, aorta.

Lymph Nodes. Bronchial and mesenteric enlarged.

Ductless Glands. Pituitary, thyroid, negative; adrenals small, ovaries small.

Brain Weight—1130 grams. (Tigges' formula 1184 grams.)

XIII-XV. *Three normal-looking brains in cases of involution-psychoses.* Orienting examination in these cases similar to XI indicated that XIII was probably a case of brain atrophy, that XIV was possibly an arteriosclerotic dement, (at any rate microscopic changes in this patient of 84 were rich enough) and that XV was quite beyond question a case of brain atrophy.

B. S. H. 7771, 8933. Path. (1911.5). Female. Age 71. Age of onset, 65; age at death, 73.

First Attack. Duration (onset 65), 24 months, 12 days.

Second Attack. Duration (onset 70), 31 months, 11 days.

Diagnosis. Chronic melancholia.

Terminal Disease. Facial erysipelas and bronchopneumonia.

Bacteriology. Heart's blood, bacterium gallinarium. Cerebrospinal fluid: Micrococcus candidans.

Trunk—Chronic Changes. Emaciation, ascites, splachnaptosis, periappendicitis, pulmonary tuberculosis, pleuritis, coronary sclerosis, endocarditis, gall stones, interstitial pancreatitis, fibromata oöphoritis.

Trunk—Acute Changes. Hemorrhagic endometritis, bronchopneumonia.

Lymph Nodes. Cervical lymph nodes calcified.

Ductless Glands. Pituitary negative, thyroid—cystic, adrenals, autolysed, ovaries atrophied.

Brain Weight—1130 grams. (Tigges' formula 1240.)

B. S. H. 4798, 5394. Path. (1912.11). Male. (1) Age at onset, first, 67. In hospital Aug. 2, 1895, to Dec. 16, 1895. Discharged improved.

Diagnosis. Acute melancholia.

(2) Age at onset, second, 70. In hospital, 14 yrs.

Diagnosis. Involution melancholia.

Entire duration of mental disease, 168-3/30 mo.

Cause of Death. Acute dilatation of the heart.

Course of Disease. Interrupted at first, latterly continuous.

Bacteriology. Heart's blood. Micrococcus cremoides. Cerebrospinal fluid, negative. Bladder, bacterium gallinarum. Prostate, bacterium gallinarum.

Trunk—Chronic Changes. Perisplenitis, peri- and hepatitis. Sclerosis—mammary, coronaries and aorta. Fatty myocarditis, hepatitis. Dilatation of heart and two incompetent valves, tricuspid and mitral. Chronic interstitial nephritis with cysts.

Acute Changes. Injection gastric and intestinal mucosa, acute cystitis, pus in prostate—acute splenic tumor.

Lymph Nodes. None enlarged.

Ductless Glands. Thyroid, adrenals very small. Testes, pituitary not notable.

Body Length—172 cm. *Brain Weight*—1430 grs. (Tigges' formula, 1346 grams.)

B. S. H. 9924. Path. (1912.29). Female. Age at onset, 58; in hospital 18-14/30 mo.

Entire length of mental disease, 20-14/30 mo.

Diagnosis. Involution melancholia.

Course of Disease. Continuous.

Terminal Illness. Septic endocarditis with multiple septic emboli.

Trunk—Chronic Changes. Chronic pleuritis, hypertrophy of heart, sclerosis aorta, atrophy of spleen, atrophic uterus, splenic infarction.

Trunk—Acute Changes. Slight hemorrhages in gastro-intestinal tract, thrombus in aorta.

Lymph Nodes. Not enlarged.

Ductless Glands. Adrenals, ovaries, pituitary negative. Testes negative.

Body Length—150 cm. *Brain Weight*—1050 grs. (Tigges' formula, 1200 grams.)

XVI-XVIII. *Three normal-looking brains in manic-depressive psychosis.* Orienting examination in these three cases showed in XVI and XVIII a moderate degree of cell loss and in XVII numerous cell losses, especially in the upper layers. Possibly XVI and XVIII are most nearly normal microscopically of this whole group (with the exception of the dementia precox xx).

B. S. H. 9483. Path. (1911.36). Female. Age at onset, 29 years. Age at death, 31 years.

Duration. One month before admission. Total duration, 19 months, 28 days.

Diagnosis. Manic depressive.

Terminal Disease. Pulmonary tuberculosis and enteritis.

Trunk—Chronic Changes. Emaciation, edema, decubitus, ascites, pleuritis, pericarditis, hydropericardium, heart hypertrophy, sclerosis aorta, anomaly aorta. Pulmonary tuberculosis, intestinal tuberculosis, interstitial nephritis, fatty hepatitis, cystic organ of Rosenmüller.

Trunk—Acute Changes. Absent.

Lymph Nodes. Induration mesenteric lymph nodes.

Ductless Glands. Pituitary plump, adrenals soft, ovaries firm and thin.

Body Length 152 cm. *Brain Weight*—1140 grs. (Tigges' formula, 1216 grams.)

B. S. H. 5884, 6794, 7040, 10594. Path. (1913.29). Female.

(1) Age at onset, 41; in hospital 2 years. Discharged improved. *Diagnosis.* Acute melancholia.

(2) Age at onset, 43; in hospital 4 months. Discharged improved. *Diagnosis.* Folie circulaire.

(3) Age at onset, 43; in hospital 7 years. Discharged to Medfield. *Diagnosis.* Recurrent mania. Manic depressive insanity. In Medfield two years, discharged to Boston State Hospital.

(4) Fifty-two years. In hospital 13 months. Entire duration mental disease, 162-17/30 mo.

Diagnosis. Manic depressive.

Interrupted at first, latterly continuous.

Terminal Illness. Pulmonary tuberculosis.

Bacteriology. Heart's blood, negative. Cerebrospinal fluid negative.

Trunk—Chronic Changes. Emaciation, atrophy of heart, fatty liver, pulmonary tuberculosis, tuberculosis of intestines, lymphatic hyperplasia.

Trunk—Acute Changes. Absent.

Lymph Nodes. Lymph node hyperplasia appendix and cecal nodes. Ductless glands, adrenals negative, ovaries elongated, white, flat.

Body Length—153 cm. *Brain Weight*—1300 grs. (Tigges' formula 1224).

B. S. H. 11312. Path. (1913.7). Female.

First Attack. Age at onset 20 (for one year). Recovered, not in a hospital.

Second Attack. Age at onset, 62 (for two years, 14 days). Age at death, 64.

Diagnosis. "Unclassified," Psychopathic Hospital. Manic depressive, depressed; second attack, Main Hospital.

Terminal Illness. Bronchopneumonia. Several days' duration.

Bacteriology. Heart's blood, streptococcus acid, lactici. Cerebrospinal fluid, bacillus cinctus.

Trunk—Chronic Changes. Corset liver, pleuritis, sclerosis, aorta, coronaries; atrophy of spleen, interstitial nephritis, gall stones, hydropericardium, thickening and swelling right vocal cord, bronchopneumonia, lymphnoditis, vegetative aortitis, pial hemorrhages, aortic thrombus.

Lymph Nodes. Peribronchial enlarged.

Ductless Glands. Adrenals negative, ovaries sclerosed.

Body Length—148 cm. *Brain Weight*—1370 grs. (Tigges formula 1184.)

XIX-XX. *Two normal-looking brains in dementia precox.* Case XIX, with a well marked underweight brain showed also an underweight heart and liver but failed to show any marked evidence of cell loss in orienting examination as carried out in the six selected regions as mentioned under XI. Only after considerable search in further section was any evidence of cell loss discovered, namely foci of cell loss in right second temporal gyrus. Naturally it would be unwise to correlate the clinical symptoms of any case with so exiguous a lesion.

Case XX showed moderate degrees of cell loss in practically all the areas examined. As above stated, Case XX and the manic-depressive cases, XVI and XVIII are the most free of microscopic alterations of a marked degree in the series.

B. S. H. 8663. Path. (1910.9). Female. Age at onset, 42. Age at death, 56.

Duration of Mental Disease. Fourteen years.

Mental disease interrupted.

Diagnosis. Dementia precox.

Terminal Illness. Osteomyelitis.

Trunk—Chronic Changes. Emaciation, decubitus, edema, ascites, pleuritis, hydropericardium, brown atrophy of heart. Endocarditis, thyroiditis, perisplenitis, gall stones.

Trunk—Acute Changes. Splenitis, nephritis, ileitis.

Lymph Nodes. Retroperitoneal lymph nodes. Superficial lymph nodes enlarged.

Ductless Glands. Ovaries atrophied. Pituitary negative. Thyroid atrophied. Adrenals negative.

Brain weight—1100 grams. (Tigges' formula 1200.)

B. S. H. 10,144. Path. (1912.47). Female. Age at onset, 25; in hospital 27 months, 27 days.

Diagnosis. Dementia precox (catatonia). Entire duration mental disease; 28-3/30 mo.

Continuous mental disease.

Terminal Illness. Pulmonary tuberculosis.

Bacteriology. Heart's blood, bacillus antenniformis. Cerebrospinal fluid, micrococcus citreus and micrococcus concentricus.

Trunk—Chronic Changes. Emaciation, edema, decubitus, tuberculous peritonitis, pulmonary tuberculosis, splenic tuberculosis, hepatic tubercles, oöphoritis and salpingitis, fibroma of uterus, hydrothorax, hydropericardium.

Trunk—Acute. Changes absent.

Lymph Nodes. Mesenteric enlarged.

Ductless Glands. Thyroid, adrenals, ovaries, pituitary negative.

Body Length—148 cm. *Brain Weight*—1210 grs. (Tigges' formula, 1184 grams).

CONCLUSIONS.

1. The present is a fragment from more extensive studies tending to settle the question how far mental disease is consistent with normality of brain; and as in previous work from the Worcester State Hospital, so this work from the Boston State Hospital has chosen to begin with normal-looking brains, since these are more likely to be essentially normal than those brains which yield obvious lesions.

2. On comparison with the Worcester percentage of normal-looking brains, viz., about one in three, and the Danvers percentage, viz., about one in four, the present Boston percentage is much lower, viz., about one in eight.

3. We do not deny that some of the lesions found in the *abnormal* brains may have had little or nothing to do with the mental disease which their bearers showed; the point of our research lodges in the endeavor to discover essentially normal brains in subjects of mental disease. There are 20 in 153 examined by uniform methods which gave promise of being microscopically as well as macroscopically normal.

4. One normal-looking brain yielded a chronic-looking exudate, Case I (12.55) which was a case of general paresis of brief duration

(less than five months), clinically certain, showed nerve-cell, and fibre-changes, gliosis and perivascular mononucleosis (including plasma cells) of fairly even degree throughout sections examined. The gross examination yielded opaque points of thickening in the pia mater over the vertex. The dura had begun to thicken and the calvarial diploe had begun to disappear. The brain had not lost more than 100 grams in weight (Tigges' formula).

5. One case yielded evidences of acute perivascular exudate post-pneumonic encephalitis) but the mental picture cannot be regarded as due to the exudate.

6. The suspicion is often uttered that cases not infrequently show fine vascular disease not evident in the gross. No such case has appeared; but there was one (x, 11.42) which, despite coarse changes in the basal vessels, was included in the normal-looking series and microscopically showed slightly marked fine vascular changes with equally marked cortical changes (no infarcts but generalized and focal losses). This case was a female of 80 whose brain weighed 1125 grams, *i. e.* 5 grams above the calculated weight according to body length. It is possible that the brain was slightly edematous—vacuoles among nerve cells (18 hours postmortem, tuberculous peritonitis). The brain was included in the normal-looking series, although on the autopsy table the diagnosis of "general cerebral gliosis" was made (confirmed by the excess of cells in the plexiform layer in virtually every region examined). It may be inquired why a case with basal vascular disease should not be forthwith excluded on the ground that fine changes will be certain to be found; but they are not sure to be found as xiv, 12.11, proved (since in this case there were *gross arterial* changes and *few or no fine* vascular changes).

7. We have accordingly reduced our 20 normal-looking cases to 18 which still give some promise of proving normal on microscopic examination. One of these 18 was a case of epilepsy, v, 11.26, with dementia; and, since the epilepsy began in infancy, it is doubtful whether it should be included in this study. Microscopically in any event, there were numerous evidences of cell-losses.

8. If we exclude this case of epilepsy from the normal-looking numerator of the fraction, we should also possibly exclude 5 other epileptics (or in all 6) from the denominator, yielding a percentage of 11.5 *i. e.* 17 in 147 cases excluding all epileptics and two cases i and x in which the microscope revealed changes which should theoretically yield gross lesions.

9. In a study of the percentage of normal-looking brains, it would be wise also to exclude clear cases of imbecility, of which there were 2 in the series, neither of which yielded a normal-looking brain; this makes a percentage of 11.7% normal-looking brains in a series of 145.

10. In the analysis of this residue of 17 normal-looking brain cases, we must first consider the question of atrophy or aplasia. Eleven cases yielded brain weights above normal, employing Tigges' formula (*i.e.* $8 \times \text{body length in cm.} = \text{probable brain weight}$). Six remaining brains weighed less than normal according to this formula. Of these six, one (Case iv, 11.11) yielded a brain weight, 1010 grams, calculated weight 1208 grams, which should probably make this case fall into the atrophic brain group. The reflex picture and certain other clinical features gave rise to the diagnosis *taboparesis*. The total duration was but one month and four days. The absent knee jerks proved due either to axonal anterior horn cell reactions or to peripheral neuritis (abundant Marchi degenerations); and it is probable that we are dealing with a *Korsakoff's psychosis* (history of previous attacks of alcoholic mental disease not obtained, but possible). Abundant evidence of cell-loss with satellitosis was found in many areas microscopically.

Another case (xv, 12.29) yielded a brain weighing 1050 grams, *i.e.* a calculated loss of 150 grams. This case showed various evidences of atrophy in other organs also, and microscopically a remarkably diffuse cell loss in the cortex. Clinically the case was one of involution melancholia, 59 years of age, of 20 months and 14 days.

12. Case xiii, 11.5, with a calculated brain weight loss of 120 grams was a female of 73 years, with total duration of about 8 years. The microscopic evidences of cell loss were such that this case also must probably be placed in the atrophic group; in point of fact her brain atrophy was probably obscured by increase of weight $8\frac{1}{2}$ days post mortem (brain not palpably soft on account of gliosis).

13. xix, 10.9, with a calculated brain weight loss of 100 grams, showed a small heart (145 grams) and a small liver (1000 grams). This case probably does not belong in the atrophic group, since microscopically there was small evidence of cell-loss. This case of paranoid dementia precox will be considered below. xvi, 11.36, and xii, 12.41, with calculated brain weight losses of 76 and 54 grams respectively, can also hardly be classed as showing important degrees of brain atrophy (see below).

14. One case (vii, 11.31) must be excluded from the present analysis, because total brain sections are in process of making (case of syringomyelia).

15. There remains a group of 12 cases, excluding i, xiv, v from the original 19, *i.e.* i as general paretic, xiv as arteriosclerotic dement, v as epileptic, iv, xv and xiii as having atrophic brains, vi as syringomyelia (analysis unfinished). We accordingly remain with one normal looking brain in twelve.

16. The residue of normal-looking brains, with the above eight omissions, consists of the following twelve:—

Case.	Sex.	Age.	Onset.	Duration.	Diagnosis.
2 (13.44)	F.	44	44	1½ mos.	Central neuritis.
3 (13.6)	M.	44	43	2½ mos.	General paresis? Korsakoff.
8 (12.37)	F.	71	71	8 mos.	Senile psychosis.
9 (13.16)	M.	77	75	22 mos.	Senile psychosis; cerebral arteriosclerosis.
11 (12.7)	M.	43	42	3 mos.	Exhaustion psychosis.
12 (13.41)	F.	60	50	10 2/3 yrs.	Unclassified (paranoia).
14 (12.11)	M.	84	67	14 yrs.	Involution-melancholia.
16 (11.36)	F.	30	29	20 mos.	Manic-depressive psychosis.
17 (13.29)	F.	53	41	13½ yrs.	Manic-depressive psychosis.
18 (13.7)	F.	64	20	2 ÷ 1½ yrs.	Unclassified manic depressive.
19 (10.9)	F.	56	42	14 yrs.	Paranoia or dementia precox.
20 (12.47)	F.	27	25	28 yrs.	Dementia precox (catatonia).

17. Attention is first directed to four cases of mental disease over ten years in duration; these are xix, xiv, xii and xvii.

18. This group of cases in which gross registration of lesions might have been expected, was subjected to orienting microscopic examination:—

xix, 10.9, shows strikingly few evidences of cell loss, but careful search discovered foci of cell loss in the right second temporal gyrus. This case, though of slow evolution and diagnosed paranoia, is thought to have had hallucinations of hearing as well as of sight. The delusions were largely of jealousy and otherwise sexual. One attack of so-called "cerebral congestion" at 40.

xiv, 12.11, involution-melancholia, 84 years at death, exhibited considerable cell loss in outer layers without marked satellitosis. Marked cell loss in calcarine region.

xii, 12.41, unclassified paranoic case, died at 60, showed fairly numerous cell losses.

xvii, 13.29, manic-depressive psychosis, died at

53, showed numerous cell losses, especially in upper layers.

19. According to a principle mentioned in the Worcester analysis, it would be unlikely that induration could register itself in brains undergoing gliosis in less than three months. There were three cases (II, III, XI), of which II was the case of possible central neuritis with marked acute cell changes ample to explain roughly the brief mental disease, III showed numerous acute cell changes probably quite consistent with the mental picture (Korsakoff's psychosis) and XI showed cell losses, perhaps of long standing (although there were overt symptoms for three months only) together with acute cell changes.

20. The group of intermediate duration, three months to three years, comprises 5 cases, XVI, VIII, XX, XVIII, IX. Of these, VIII, age 71, and IX, age 77, attract attention on the score of age: both showed cell losses, in the former focal with perivascular gliosis, in the latter marked diffuse losses. Of the three remaining, two are manic-depressive cases (XVI, 11.36, and XVIII, 13.7) and one (XX) catatonic dementia precox. All three showed moderate degrees of cell loss.

21. Accordingly, it is plain that the search for functional psychoses which shall be above all neuropathological reproach is an exceedingly elusive task and possibly never to be rewarded. In a forthcoming communication we shall deal with the detailed microscopic picture in five of the cases of this series (XII, XVI, XVIII, XIX, XX) since these five appear to be the least likely of all our series of 153 cases to show important microscopic lesions.

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THE EMERGENCIES OF EXTRA-UTERINE PREGNANCY AT THE BOSTON CITY HOSPITAL. AN ANALYSIS OF SIXTY-TWO CASES.

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EVER since the paper of Robb¹ appeared in 1908, the writer has been especially interested in

the question of immediate or delayed operation in the emergencies arising from ruptured extra-uterine pregnancy.

The views expressed by Robb have caused so much discussion that the writer was led to study the cases treated by the Gynecological service at the Boston City Hospital from 1902 to 1913.

This paper is written after the study of 215 cases diagnosed as extra-uterine pregnancy and treated by the gynecological service since 1902, but deals only with 62 real emergencies which presented the symptoms accompanying ruptured ectopic gestation with severe hemorrhage. These 62 emergencies comprise 31 with a previous history, and symptoms typical of ectopic gestation; and yet in many of these the microscope revealed no sign of pregnancy in the tissues examined.

As they presented, however, such objective symptoms as shock, tubal rupture and severe intra-abdominal hemorrhage, there can be little doubt as to causation. Under any circumstances, the indications as to treatment were identical and hence they have been included. Among these 62 emergencies were 2 coincident extra- and intra-uterine pregnancies, 2 repeated extra-uterine pregnancies, and one twin pregnancy in a single tube.

Analysis of Cases. In 5 the age is unstated. In each of the decades from 20-30 and 30-40 years, the numbers are equal,—28 in each; while after 40 years there is only one. There are none under 20 years.

Obstetric History. Of the whole series, 12 women had never borne children, 14 had previously been pregnant once, 13 twice, 6 three times, 6 four times, 8 had been pregnant five times or over, and in 3 this was not recorded.

The time elapsed since the previous pregnancy among 37 women was: 3 years or under, 16; 3-5 years, 13; and 5-15 years, 9.

Of 46 cases, the previous pregnancy terminated normally in 30, 14 miscarried, and 2 had an ectopic pregnancy.

Duration of pregnancy at the time of rupture in 58 women was: under 2 months in 27, from 2 to 3 months in 26, 3 to 4 months in 4, and 4 months in one.

There were 3 early ruptures: 2 at 2 weeks, and 1 at 3 weeks after the last menstruation.

The last case was interesting, as the tube ruptured near the isthmus, opening the branch of the ovarian arch which runs beneath the tube. The enlargement was about one-half centimeter in diameter, and microscopic examination failed to demonstrate a pregnancy. As there seemed to be no reason to doubt an ectopic gestation in this case, it has been included.

Site of Rupture and Tube Affected. The first was definitely stated in 18: isthmus, 11: central portion, 3: outer end, 4.

The left tube was ruptured in 29, and the right in 27.

There were 3 tubal abortions, all on the left side, and no statement in regard to 3.

Pulse. Of 61 patients, the pulse was 100 or below in 12, and between 70 and 80 in 3. In 27 it was above 120,—170 being the highest rate recorded. The remainder varied from 100 to 120.

Temperature. Of 62 women: 29 had a temperature of 98° or below, 40 a temperature of not over 99, and only 9 rose to over 100°.

Two cases entered with temperatures of 101.2° and 104.2°, respectively.

The Blood Counts. As the bulk of our cases have been operated at night, only 16 have the hemoglobin estimated, and in all these, the sudden onset occurred at least 12 to 24 hours previous to operation. In 3 the percentage was below 40, and in 2 of these so low as to be uncertain by the color test. The remainder were 60% or under, with one exception of 80%.

In looking over these cases we find that the rise of hemoglobin in the blood is a slow process, even after the chance of hemorrhage is past. One patient with 50% hemoglobin at the time of operation had no change by the second day, one with 60% no change on the third and only 5% advance on the eleventh day. Another with 50% on admission had only 60% after 20 days, while one, with hemoglobin too low for estimation, rose only to 45% after 3 weeks. In still another, the hemoglobin gained from 60% to 90% in 19 days, but this is exceptional, and in the first eleven days there was a gain of only 5%.

The red count at entrance, in 4 cases, was between 3 and 4 million, while the patient with extremely low hemoglobin, mentioned above, had 1,164,000 and recovered.

The white count was given in 24 cases and varied from 6400 to 32,000; 10 having a count of 10,000 to 20,000, and 11 of 20,000 or over.

No relation of the white count to either the amount of blood lost or the duration of the rupture could be made out, some of the most severe cases having small leucocytoses.

As showing the rise in reds and hemoglobin, the results are given below in a case recently operated but not included in the series:—

Day after operation	3	6	9
Reds	1,888,000	2,424,000	3,200,000
Hemoglobin	30%	45%	65%

Day after operation	12	24
Reds	3,800,000	3,520,000
Hemoglobin	70%	85%

Symptoms. The symptoms, beside those of ordinary pregnancy, may be broadly divided into two groups: first, premonitory; second those connected with rupture. The first were usually subacute and separated from those connected with rupture, or the acute symptoms, by a definite interval during which symptoms were either wanting or of a mild character. In a few cases the premonitory symptoms were acute, and in some were prolonged into those immediately preceding operation.

In 15 of 60 women, however, there were no disturbing symptoms until the time of rupture.

Three of these pregnancies ruptured early: 1 at 6 weeks, and 2 at 5 weeks after the last menstruation, while 2 ruptured at 3 and 3½ months, respectively.

On the other hand, 45 women gave a definite history of suspicious or alarming symptoms for some time previous to the attack for which they entered the ward; if coupled with the acute symptoms which followed and were present on admission.

Premonitory Symptoms were evident in 15 of these from 2 to 7 days before operation, in 27 for from 8 days to 4 weeks, in 2 for 6 weeks, and in 1 for 8 weeks.

These symptoms consisted of:—

(a) *Amenorrhea.* Excluding 6 women who ruptured before the following menstrual period was due, this symptom, with others, was common to 39, and appeared in 54 of the 60 cases with histories obtained.

Of 15 women with amenorrhea as the only symptom before rupture: 6 were over 2 months pregnant, and of these, 2 were 3 and 3½ months, respectively, i.e. about one-third had simply an amenorrhea.

(b) *Abnormal Flowing.* In the 6 early ruptures mentioned in the preceding paragraph, 5 had either an irregular or constant flow, commencing with or shortly after the last regular catamenial period.

In 41 out of the 45 with distinct premonitory symptoms, flowing appeared at various intervals and more often for varying periods before the rupture.

In 20 flow and pain were combined, and 7 flowed without pain.

(c) *Abdominal Pain.* This was a complaint in 25 and was localized by 13 in the lower abdomen.

It was described by 16 as intermittent and sharp, and by 9 as dull and persistent.

In several there were attacks at varying intervals, and in 20 it was accompanied by flowing, as stated above.

Acute Symptoms. The records contain statements concerning acute symptoms in 59 cases.

In 8, these had been manifest from 2 days to 3 weeks before entrance; and in the remainder, under 24 hours.

Sudden abdominal pain was characteristic of the great majority, but in 7 this was an increase of existing or a recurrence of similar less acute attacks. In 2 there was simply increasing weakness and pallor after previous intermittent or persistent abdominal pain, for a period of 3 weeks in one and 6 weeks in another.

Pain was apparently unlocalized in 21—2 stating it to be general.

Pain was localized by 16 in the lower abdomen and by 1 in the epigastrium, while by 21 it was definitely referred to the right or left pelvic region—always on the affected side.

Fainting is mentioned in 23 instances, nausea and vomiting in 5, and chills in 3.

A dark bloody flow from the uterus was often noted, but this is more characteristic of tubal abortions, while in some a boggy feeling was present in the vagina, with dullness, shifting dullness, tenderness and distention. The tendencies of temperature and pulse have been previously given.

Mortality. These cases have been treated by many operators and the walk of life from which the patients have been drawn has not been conducive to good operative results, many being extremely poor subjects for any operation on account of personal habits and a poor mode of life. The total mortality is 24.2%, but 3 died of: cerebral embolus, patent foramen ovale, and infection before admission. With these omitted, the mortality is still 19.3%, but considering the class with which we deal and the condition of many at entrance there seems to be little likelihood of improvement.

Among the 15 women pregnant for the first time, 5 died,—one a tubal abortion.

In 2 of the 5 fatal cases, a chronic salpingitis was reported, and it does not seem improbable that they were infected at the time of rupture from old foci remaining in the pelvis. Three of the 5 died from peritonitis, and 2 from shock alone.

The causes of death in the 15 fatal cases are given below:—

Shock	8
Peritonitis	4
Cerebral embolus	1
Status lymphaticus and patent foramen ovale.....	1
Infection before admission.....	1

Summary. In reviewing these cases it is instructive to note that exactly 50% gave positive evidence of pregnancy. This may have been often due to the poor selection of tissue, but more probably to the destruction and washing away of evidence by the rupture and hemorrhage following.

With one exception, blood was distributed throughout the abdominal cavity, and in a number of instances the fetus was found floating in the blood.

Age had apparently no influence, as the cases were scattered through the child-bearing period, in such a manner as would be expected under normal conditions. Where recorded, the isthmus was definitely the seat of implantation in over 50% of the cases, and in many others the tube was probably in such condition that an exact statement was impossible.

It is also interesting that about one-half the series presented evidences of previous infection of the genital tract, or at least an obstetric history suspicious in this respect.

The cause of the abnormal pregnancy is obscure in a great proportion, for although adhesions were present in many the records do not always speak of them as of long duration, and in some the opposite tube was reported normal. The scarcity of the statements in regard to ad-

hesions is not to be wondered at, when we consider the necessity for speed at the time of operation and the ease with which localized adhesions might be overlooked.

There seems to be some evidence, however, that an inflammatory condition may have been, in most cases, the determining cause, or at least have produced conditions interfering with the processes of conception.

In regard to the pregnancy immediately preceding in 50 women: 30 were delivered at full term, 14 miscarried, 2 had an ectopic gestation, and no history was available in 4.

The remaining 12 of the 62 cases were primiparae.

Of the 30 delivered at full term, 5 showed marked evidence of old inflammatory processes.

In 9 of the 14 miscarrying at the previous pregnancy, from 3 to 5 years had elapsed without conception, while one had 6 miscarriages in succession after an attack of pelvic inflammation 7 years before.

Chronic salpingitis was reported by the pathologist in 4, but no other data were available.

Of the 12 primiparae: 1 had gonorrhea, 2 were single, 2 had chronic salpingitis, and 8 out of 10 women had been barren for from 2 to 9 years after marriage.

Simpson from his exhaustive study of sterility and fecundity concluded that the chance of pregnancy was slight after the lapse of 3 years of married life, during the period when the chance of fecundity was greatest.

In 38 cases the last pregnancy had been from 3 to 5 years previous in 13, from 5 to 15 years in 9, and of the remaining 16, who had conceived within 3 years, 9 miscarried.

The average number of children borne by 54 women of our series at an average age of 31 years, was 2.42; while the average was 3.27 in 100 women taken from the medical records and averaging 31.23 years.

Realizing that figures as to pregnancy are apt to be fallacious, for many reasons, those in the preceding paragraph are given with these limitations in mind.

It may be said, however, that nearly one-half of the cases had either some actual abnormality or some point in their history which would make us suspicious that a pathological condition might reasonably exist.

The 60 cases, in which data were given concerning symptoms, show that prodromal signs were absent in only 25%, and in 75% they were of considerable duration for the most part, and distinct enough to have attracted the attention of a physician had one been consulted.

Among the 60 cases were three of tubal abortion, but they presented nothing in previous symptoms or in acute onset which would differentiate them from rupture; and in fact, with many tubal abortions, there is a considerable amount of damage to the fimbriated extremity.

Amenorrhea was wanting in only slightly

over 10% of 60 cases with data, and these ruptured before the following period was due. Flowing in these cases came on early after the last period and was persistent or irregular, ending in early rupture.

It is such cases which are so often mistaken for an early miscarriage, while with those of longer duration definite warning abdominal symptoms are seldom absent.

Abnormal flowing occurred in almost every case (4 without) as a premonitory sign, and in slightly over 44% flow and pain were combined.

Surprisingly few complained of abdominal pain as an early symptom (55%), and by still fewer (28%) was it localized, and then always in the lower abdomen.

According to this series, comparatively few ectopic gestations rupture without premonitory symptoms. Where sufficient time had elapsed, amenorrhea was always present to warn of a possibility, made more probable by the almost universal abnormal flow. The flow, in turn, was accompanied by pain in nearly one-half, and in 28% this pain was referred to the lower abdomen.

Not one of these cases was diagnosed previous to rupture, so far as is known.

We may also say, that with pain and flowing after amenorrhea, especially when preceded by longer periods without pregnancy, an investigation is always advisable.

The symptoms connected with rupture were such as are ordinarily given in text-books, and as patients entered the hospital only 2 gave difficulty in diagnosis and these were the only mistakes. One, with the uterus embedded in a symmetrical mass of clot, was mistaken for pregnancy. The second was diagnosed as a pelvic inflammation, and died without operation. This case was complicated by a patent foramen ovale and was in extremis.

Pelvic examination has given little aid in diagnosis, although a mass or a doughy feeling in the pelvis has been mentioned. Dullness in the flanks and shifting dullness have been noted in some, but have depended so much on the thickness of the abdominal wall and degree of intestinal distention as to be often of no special aid.

It is in these cases of rupture that the clots form slowly, and are of such a soft consistency as to be made out with difficulty, especially when hampered by the distention, which in itself has often been a mark of severe hemorrhage.

In connection with the appearance, history, location of pain, temperature, and physical examination, diagnosis has usually been clear.

Leucocytosis, when recorded, has been high in the majority and has furnished little aid in differentiating from sepsis, while no relation of the white count could be established to either the amount of blood or the duration of rupture. Some of the most serious had small counts, and one septic case a leucocytosis of only 7900.

The temperature has also not been elevated to

such a degree as to suggest inflammatory processes, except in such cases as have been obviously infected at entrance. This is somewhat at variance with the reports in other series, where the greater number have had a temperature above normal.

The mortality of the series has already been given, and at once suggests the subject of treatment.

At the start, let it be understood that it is not intended to champion the cause of long delayed operations, for with the patient in reasonably good condition, operation at the earliest moment is always best, but from time to time papers have appeared urging immediate operation in every instance. To this view the writer takes exception, believing that the general application of this principle is wrong, and that a more moderate course is advisable.

In the not very distant past all ectopic gestations were treated expectantly, and it was not until 1849 that W. W. Harbert suggested laparotomy for the control of hemorrhage. Rogers in 1866, and Parry in 1876, again urged this treatment, which Tait was the first to adopt in 1883.

From that time to the present, operation has steadily increased in favor, until for the last twenty years it has been the recognized form of treatment, and when and how to operate the only question.

At a meeting of the American Gynecological Association, in 1908, the advisability of immediate, or delayed operation during shock was thoroughly discussed by men of large operative experience, the two factions being about equally divided.

Looking over the literature for the past few years, one finds many series of immediate operations with far better mortality than the present, but few with which it may be compared, as nearly all include tubal abortions—the less severe with the serious emergencies—and nearly all aim to show the necessity of haste. The statistics compiled by McDonald,² and the series of Ladinski,³ Vineberg,⁴ Price,⁵ and others show excellent results for immediate operation; and it is manifestly unfair to refer to statistics of years long past, when abdominal surgery was not understood. It is also evident that the social or racial characteristics of the hospital clientele may have a considerable bearing on both methods and results.

Aside from Robb, who is a strong partisan, and Treub,⁷ no one except Frank has apparently attempted to work out the problem of "delayed" or "immediate" operation with care. Frank's series is valuable because the individuals were treated in this country by one institution, and by both methods. His conclusions, however, as to operation do not seem entirely warranted by his statistics.

Furthermore, the term "immediate" operation, so often seen, is somewhat elastic, referring

generally to the time when the patient was first seen, and not to the time of rupture; nor has it always appeared to indicate an emergency.

The period elapsing between rupture and operation varies widely in our series, and undoubtedly the same conditions prevail elsewhere, therefore the term is inexact. In this discussion, "immediate operation" has reference to the time of hospital admission, but the duration of acute symptoms has usually been hours, and in a few instances, days, before entrance. All, however, were emergencies at the time of operation, and in a condition of shock. With one exception all were operated.

Practically all patients came from the lower strata, where hygienic conditions and habits do not tend to great bodily resistance, and the question arises as to whether immediate operation was best for all, viewed in the light of the ultimate mortality.

Every surgeon sees those emergencies in which the ability of the patient to withstand the extra shock of immediate operation is doubtful, and he is called upon to decide whether the outlook for recovery would not be bettered by delay, and whether delay in his doubtful cases has been justified by the results.

There seems to be no question but that extra-tubal and intra-tubal rupture (tubal abortion) differ in frequency as well as mortality, for McDonald in a series of 1607 cases, found only three extra-tubal to every seven intra-tubal ruptures, while in the 215 cases operated on the service, rupture was related to abortion as 1 to 3.7.

Intra-tubal rupture, or tubal abortion, is generally characterized by repeated small hemorrhages, which eventually build a laminated clot. This circumscribed irritation of the peritoneum results in a mass of blood surrounded by adhesions, the pressure of the blood in the sac appearing itself to help control further bleeding, even though smaller hemorrhages occur from time to time. For this reason tubal abortions seldom furnish emergencies, as is evidenced by only three grave operative cases among the one hundred and fifty tubal abortions which have been treated by the gynecological service at the Boston City Hospital, and only two immediate operations in the series of Frank,—one of these without free blood in the abdomen.

The reaction of the peritoneum to these localized hemorrhages indicates very conclusively that with the sudden introduction of even a moderate amount of blood into the peritoneal cavity, varying degrees of peritoneal irritation and shock must follow. Our series apparently shows that few women die primarily of hemorrhage, as in only two of the sixty-two emergencies was active bleeding found at operation, and the majority reached the hospital on an average of eight to ten hours after rupture. That the condition of these acute cases is not due en-

tirely to the loss of blood, is borne out by the fact that the shock, rate and character of the pulse are not always in proportion to the blood lost, and that similar symptoms appear after the sudden rupture of the larger ovarian cysts, when there is little loss of blood. One of Frank's cases, with a pulse of 96, was in marked collapse from rupture alone, without much loss of blood, and one of the emergencies at the Boston City Hospital had a pulse of 72, with the abdomen filled.

It is also the writer's observation that the peritoneum of different individuals reacts in varying degrees, even where conditions seem identical,—blood in one apparently causing few, in another many, adhesions. For the same reason, the shock may be profound with a comparatively small hemorrhage. Furthermore, the ability to withstand operation after severe accidents differs as regards both individuals and races.

Using the hemoglobin as a rough estimate of the extent of bleeding, with any considerable amount of blood in the peritoneum, neither prostration nor pulse-rate or volume has the reasonable relation to the hemoglobin percentage which might be expected in patients of apparently equal physical vigor, although it is true we do not know the exact conditions at the start. Greater prostration is often manifested after a comparatively small hemorrhage.

Estimation of hemoglobin and blood corpuscles immediately after hemorrhage shows no special change, but after six to twelve hours, fluid is absorbed from the tissues, and the percentages lowered. Since both red count and hemoglobin appear to undergo slight changes during the first few days after operation, the fluid content of the blood has seemingly adjusted itself temporarily by the time these women reach the hospital, and on this account salt solution should be preferably given in such a manner as to be slowly absorbed, if the conditions warrant delay, and only rarely by intravenous injection. Women who have been treated without intravenous injection appear to make better recoveries and to have a less lasting anemia, even where emergencies seem of equal gravity.

It has never been possible for the writer to perform a transfusion, but in the only two which it has been his fortune to follow after operation, the bettered appearance has promptly disappeared after the first two days, and the pallor markedly increased, showing no advantage over the use of salt solution.

Experience, and a review of these emergencies, leads the writer to believe that it is *shock* not previous hemorrhage, which is the cause of death in those grave cases which succumbed shortly after operation, and that the "immediate" operation is the last straw.

It seems fair to assume that a patient suffering from shock, after pain and hemorrhage, will be more or less worn by an ambulance trip with stretcher bearing at both ends, to say nothing of

the psychic disturbance attendant upon probable operation. To add indiscriminately at this unfavorable moment the extra shock of anesthesia and an abdominal section, appears to the writer in certain cases extremely ill advised. The further decrease of resistance, due to operation, may also take away the ability to cope with organisms which under ordinary circumstances would be innocuous. Peritonitis following operation in such cases is often of a low grade, and in a number of cases it has probably arisen from a previous pelvic infection.

Most patients reach us hours after rupture, and as among sixty-one operative cases, only two were found with active bleeding noted; in taking the chance of hemorrhage, for a few hours at least, we are assuming no greater risk than in adding the shock of operation to that which already exists, as well as the possibility of infection in a state of very low bodily resistance.

It has also been said that patients are upon the "rebound" by the time the hospital is reached. This is true of some, but in others the opposite is equally true; and with the latter, reasonable delay allows opportunity to recover from the effects of transportation, preparation for operation, etc. In every very severe case, under careful supervision, delay should be extended, if possible, to include a reasonable recovery from shock. To this statement only one exception should be made,—the suspicion of active hemorrhage.

The pulse rate may rise slightly, but if the character improves and the rate steadies, no uneasiness need be felt on this account, while in many the rate will diminish after a short rest. Each case, however, must be considered on its own merits; and habits of life, race, and previous history mean something in addition to physical examination.

In the previously mentioned series of Frank, there were 42 ruptures, 21 of which were operated at once, and 21 "observed" before operation.

Of 77 operative cases in his list, including ruptures, abortions, hematoceles, etc., only 24 were operated immediately, including two tubal abortions and one hematocele. Four cases, comprising two ruptures, one hematocele, and one abortion, has no free blood in the abdomen, so that immediate operation was required in only twenty. The only deaths in the whole series were two operated in shock, and one septic hematocele.

Trenb,⁷ in 1908, published 151 cases (including tubal abortions) treated by deferred operation, excepting those with alarming symptoms, with a mortality of three.

Aside from three, dying of causes not directly connected with operation, there are eight of our own series who died of shock, and four with peritonitis,—all operated at once. Some of these, the writer believes, would have lived had intervention been delayed, and in others, peri-

tonitis might have been avoided by a more deliberate operation.

In no rupture has death resulted where operation has been delayed, by the writer, on account of the poor condition of the patient, but he regrets several who died as the result of an operation, undertaken during shock, for what was thought might be persistent hemorrhage.

As has been said before, the differences of the classes from which various hospitals draw their patients and the character of the emergencies received, renders it difficult to make fair comparisons, or to lay down rules suitable for all. When delay has been fairly tried, many serious extra-uterine emergencies have been tided over the critical period of shock, and have been operated successfully. Judging from the series upon which this article is based, and upon others which approach the matter without bias, the effect of an operation during shock is as much to be feared as continuance of hemorrhage, and delayed operation seems well suited to some, and immediate operation unnecessary for all.

On the side of the surgeon it often requires more courage to wait than to proceed immediately, but from the patient's standpoint, the teaching that "immediate" operation is always necessary is decidedly dangerous.

Tubal abortion, with its few emergencies and small mortality, is much more frequent than rupture, and not a few of the former will be treated under poor surroundings by the incompetent, to say nothing of the real emergencies which demand still greater judgment and skill. For this reason alone, care is very necessary in advising this treatment under all circumstances; but for those patients who are in a suitable physical condition, amid proper surroundings, and in competent hands, immediate operation will always remain the proper choice.

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Clinical Department.

LYMPHATIC LEUKAEMIA IN ACUTE INFECTION, AFTER REMOVAL OF THE SPLEEN.

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AND

WILLIAM DAVID SMITH, M.D., BOSTON.

A young man, a college student of twenty-one years, American.

F. H. Not remarkable.

P. H. Enlarged cervical glands removed in childhood. Typhoid fever in 1907. Splenectomy in Switzerland in 1909 following rupture of the spleen in a coasting accident. Blood examination made in Switzerland a few weeks after splenectomy showed essentially a normal blood picture, i.e.:

Red count.....	4,600,000
White count.....	7,800
Hgb.....	68 to 70%
Polynuclear neutrophils.....	58%
Small lymphocytes.....	22.5%
Large lymphocytes.....	2.5%
Transitional cells.....	10%
Eosinophiles.....	6%
Mast cells.....	1%

P. I. May 31, 1913, patient seen complaining of fatigue, moderate headache, sore-throat and slight stiffness of the neck. Tonsils moderately swollen and together with entire pharynx were dry and reddened, but without membrane or exudate. Glands at angle of jaw on right were slightly enlarged, hard, discrete and a little tender.

Temperature 99.4. Pulse 78.

June 2, condition unchanged except that glands on right were decidedly larger and there was discomfort on swallowing.

Temperature 100. Pulse 70.

June 3, condition worse. Tonsils swollen, especially the right, which approached median line. Glands on right side of neck now crowded together into a hard mass almost level with jaw but without fluctuation or evidence of softening. On the left side of neck were several discrete enlarged glands, size of chestnuts.

Temperature 101.6. Pulse 72.

Up to this time the case had been considered an acute tonsillar infection with secondary involvement of the glands of neck. A white count and smear done at this time gave the following result:

White count.....	40,000
Polynuclear neutrophils.....	5%
Lymphocytes, large.....	59%
Lymphocytes, small.....	36%
Mast cells.....	0%
Eosinophiles.....	0%

A stained smear submitted to an eminent pathologist in Boston was reported as follows:

"The smears of blood submitted to me today show appearances which I regard as those of beginning lymphatic leukaemia. The presence of some very atypical basophilic mononuclear cells makes me very suspicious that the case is one of so-called 'acute lymphatic leukaemia'."

June 4, not much change in neck glands; inguinal glands on both sides enlarged to size of beans; axillary and epitrochlear glands also slightly enlarged.

Temperature 101. Pulse 72.

June 5, patient seen in consultation by a well-known Boston internist who confirmed the findings and also demonstrated a small area of relative dullness in the right back in region of root of lung. He considered the case a probable lymphatic leukaemia but suggested the possibility of an absent spleen modifying the blood picture.

June 6, decided improvement in all symptoms, throat less sore, size of glands in neck definitely diminishing, temperature 99.2, pulse 68.

June 8, patient up and about, continued improvement; neck glands palpable but small.

Blood examination—

Red count.....	5,400,000
White count.....	32,600
Hgb.....	90—95%
Polynuclear leucocytes.....	13%
Lymphocytes, large.....	70%
Lymphocytes, small.....	17%
Mast cells.....	less than 1/2%
Eosinophiles.....	0%

June 19, apparently well and leading a normal life.

White count.....	17,000
Polynuclear neutrophils.....	16%
Lymphocytes, large.....	70%
Lymphocytes, small.....	13%
Mast cells.....	1%
Eosinophiles.....	0%

July 14, apparently perfectly well; no palpable glands; white count 10,800.

Aug. 23, 1913.

White count.....	7,000
Polynuclear neutrophils.....	33%
Lymphocytes, large.....	43%
Lymphocytes, small.....	21%
Mast cells.....	1/2%
Eosinophiles.....	2.5%

*April 15, 1914.

No leucocytosis. Red cells normal. Platelets much increased in number.

Polynuclear neutrophils.....	75%
Lymphocytes, large.....	6%
Lymphocytes, small.....	13%
Eosinophiles.....	6%

SUMMARY.

A young man a few weeks after removal of spleen in 1909 showed an essentially normal blood picture.

In 1913, he developed what seemed clinically an acute tonsillar infection; this was quickly followed by marked enlargement of glands of neck and moderate general glandular enlargement involving axillary, inguinal and epitrochlear glands.

This situation was accompanied by a blood picture so typically that of lymphatic leukaemia that no other diagnosis seemed possible.

After a week of sore-throat, general malaise and moderate elevation of temperature the symptoms abated and a normal convalescence as from an acute infection ensued.

Blood examinations done from time to time showed a gradual diminution in the white count and a change in the blood picture from that of a typical lymphatic leukaemia on June 3, 1913, to an approximately normal picture on Aug. 23, 1913 and a normal picture on April 15, 1914.

* This examination was made by Dr. Willard S. Parker.

SUB-MUCOUS RESECTION AS A MEANS OF OBLITERATING SUPERFICIAL BLOOD VESSELS.

BY JOSEPH PRENN, M.D., BOSTON.

IN the *Laryngoscope* of October, 1914, Dr. John A. Thompson, in his article "Uncommon Case of Nasal Hemorrhage," remarks that "the unusual feature was the method of cure by sub-mucous resection."

In the summer of 1914, at the out-patient department of the Boston City Hospital, a sub-mucous resection was done with the same object in view,—that of curing a nasal hemorrhage. The theory upon which this operation was based was, that after taking out the cartilage of the septum a new circulation for the fibrous tissue formation of the septum would have to be established. The endothelial cells of the existing capillaries would have to multiply to form new blood vessels and the current directed inward. The mucosa then will get the amount of blood supply needed for its existence, but not too much to squander. (The increase of the flow of blood to one part of the body, while at the same time diminishing it in another part of the body, goes on in the human economy physiologically as, for instance, during the process of digestion). The result justified the theory.

The patient in question was plethoric. The mucous membrane of the septum was congested. Superficial blood vessels and many bleeding points were present. He also had a vomerian ridge on the bleeding side, not wholly obstructive, but undoubtedly increasing the congestion.

Bleeding during the operation was rather more than usual. (No novocaine with suprarenalin infiltration was used). When the patient was examined at the end of a few weeks the septum was straight, the congestion of the mucosa was all gone, and no bleeding points or superficial blood vessels were to be seen over the operated area. Whether it is advisable to operate during the congested stage, or to wait until the congestion is over, depends upon the case. This case is reported by courtesy of the throat department, Boston City Hospital.

Another case was that of a patient coming to the office with the usual history of frequent nasal catarrh, nasal obstruction, dryness of throat, occasional nose bleed. The tip of the nose was red for the last two years, and the patient, a boy of twenty-one, of good habits, wanted to know whether the latter could be helped.

Examination showed sub-acute rhinitis, mucopurulent discharge along the floor of the nose, not pointing to any of the sinuses. The mucous membrane over the cartilaginous part of the septum showed radiating blood vessels on one side, slight anterior deviation with basal spurs on either side, bathed in pus, touching the

inferior turbinates, and would not admit a probe. Local application of protargol was used and alkaline spray was prescribed. Operation was advised in about a week, believing that it would also do away with the congestion of the tip. The latter belief was based upon the following consideration. The redness of the lobule of the nose, when brought about by inflammatory conditions of the nasal mucosa (and that is usually the case), is due to the existing anastomosis between the blood vessels and the plexus of the skin of the tip of the nose. It stands to reason then, that should we cut the anastomosis at the mucocutaneous junction, further congestion would be stopped, and if we will allow the cut to heal by "second intention," more blood will be necessary to granulate the surface, and the congestion ought to be entirely relieved. That is apparently what happened in this case. The redness of the tip disappeared the second day after the operation, and remained so. No superficial blood vessels of the mucosa are to be seen. The septum is straight.

In order to cut the anastomosis at all points, two incisions about a half an inch in length, at about right angles to the classical vertical incision were made, one at the floor, and the other at the roof of the nose so that they formed a flap. The flap was not sutured, but simply put in place to prevent healing by "first intention."

N.B. The difference between "first" and "second intention" as used in this article is not as marked as in other parts of surgery, for in either case, we are dealing here with linear incisions.

Medical Progress.

PROGRESS IN TUBERCULOSIS.

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AND

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THE literature on tuberculosis is so enormous, and the work that has been done during the last few years covers such an immense field, that a review of this subject must perforce confine itself to the barest summary of the most striking features. It should also be remembered that there is sure to be a wide difference of opinion as to what are the more important articles and points which deserve comment. We therefore state in the beginning that in this review special attention will be paid to the clinical and practical side of this subject and to those features which we believe will be of help to the medical profession as a whole and not merely to one small group.

Diagnosis. Progress in the early diagnosis of pulmonary tuberculosis or in the diagnosis of early pulmonary tuberculosis seems to have been steady though slow during the past few years. In the field of tuberculosis in infancy and childhood, especially in the recognition of bronchial gland tuberculosis, much work has been done and distinct progress made. Of great importance in this regard is the fact that the difference between tuberculous *infection* and tuberculous *disease* is more clearly recognized. Attention has been called to this by Pritchard,¹ Hawes,² and Bailey.³ In bronchial gland tuberculosis the x-ray has its greatest field of usefulness. Crookshank⁴ strongly urges that "the general practitioner should be encouraged to recognize early enlargement of the tracheo-bronchial glands with no lesser zest than would apply to the diagnosis of the secondary symptoms of syphilis." "It is certain that as many children suffer at one time or another from lodgment of tubercle bacilli in this or that group of glands as from measles or from chickenpox." "The care of the child is the root of the problem in dealing with tuberculosis." In diagnosing bronchial gland tuberculosis the value of "d'Espine's sign" as evidence of enlarged, *but not necessarily tuberculous glands* has been wisely emphasized by many. Likewise, in X-ray work, it has been shown that enlarged glands at the lung roots may be due to many other infections aside from tuberculous. These are most important points.

Lucas⁵ presents good diagrams showing the relation of bronchial glands to the bronchi and urges further study of this form of tuberculosis. Treatment of these early cases of infection brings excellent results; if there is a delay until more striking evidence of disease is present, the chances of recovery are too often gone. Lucas gives a most instructive symptom-complex of tuberculosis in children which should be read by every physician. It is of interest to compare this with a similar symptom-complex published in the 1913 report of the Massachusetts Tuberculosis Commission.

In adult disease, the X-ray workers are as enthusiastic as ever, declaring that by means of the X-ray lesions can be discovered in the lungs long before they can be recognized by clinical investigation. These are the words of enthusiasts however. The majority of the profession whose opinion is of value in this line, take the more conservative view that while the X-ray is a useful adjunct and should be made a part of a routine clinical investigation, it should never replace clinical methods. Moore⁶ states that "the gross lesions of pulmonary tuberculosis give characteristic appearances on the radiograph," but that in "the border-line cases the Roentgen ray cannot determine the activity of a tuberculous process."

Claypole⁷ describes human streptotrichosis as a cause of error in diagnosis and is of the opinion that it is commoner than is supposed to be the case. Lee⁸ presents in detail several cases of

this type. Davis⁹ describes the lesions of nocardia and states that they "clinically are not ordinarily distinguished from pulmonary tuberculosis." L. Brown¹⁰ in a most interesting paper discusses errors in diagnosis of pulmonary tuberculosis. Among other conditions which may be mistaken for tuberculosis he describes cases of Hodgkin's disease, malignant tumors, syphilis and cardiac disease.

Ewart¹¹ describes "Perez' sign"—motor joint crackles—as a possible source of confusion in diagnosis. Hawes¹² has confirmed this point on a large number of patients and has taken up as well the part played by muscle sounds, tendon or bursal sounds, and atelectasis in addition to motor joint crackles. He concludes that only muscle sounds and motor joint crackles are real sources of error, and urges that in all doubtful cases the patient be made "to go through the motions of breathing" without taking any air into the lungs through mouth or nose, in order to decide whether the sounds heard are râles or are due to extraneous causes.

In regard to specific diagnosis, much work has been done but little real progress made. In children 5 years old or under, a positive skin tuberculin reaction is recognized to be of the greatest value as pointing to a tuberculous infection; in adults, only a positive subcutaneous tuberculin test performed by experts with a *local* as well as a *general* reaction is of value. Fildes,¹³ Radcliffe, and McIntosh, Pringsheim¹⁴ and others, have discussed this subject at length.

The various concentration methods of sputum examination by anti-formin and in other ways, have a definite place in sanatoria and other institutions. As a means of diagnosis for the general practitioner, there are hardly available.

On the whole, the medical profession seems to be slowly but surely learning that it is not by any specific tuberculin reaction, X-ray, etc., but by a careful and painstaking study of the patient's history, occupation, habits, constitutional and local signs and symptoms, that the diagnosis of early pulmonary tuberculosis can be made.

Prognosis.—Progress in estimating the patient's chances in the future has consisted chiefly in relegating to their proper places various tests which at first were thought to be of great value in prognosis. The study of the leucocytes, according to Arneth¹⁵ with the shifting of the nuclear picture to the left or the right attracted undue attention. While in certain cases it gives valuable evidence, the technique is far too difficult, the process too long, and the chances of individual error too great to make it a factor of any importance in prognosis. Likewise with regard to the diazo and urochromagen reactions, final results have not shown these tests to be of real help. On the other hand it seems to be accepted that a gradual decrease in the number of bacilli in the sputum with particular reference to the appearance of degenerative forms, etc., is of some value providing, of course, that the work is done by one qualified to judge. Kirchen-

stein¹⁶ from Spengler's private laboratory at Davos writes interestingly on this subject. Brown¹⁷ in a paper entitled, "When is a tuberculous patient cured?" concludes with the following sentences which merit grave consideration: "In conclusion, as a confession of faith, I may say that I believe that pulmonary tuberculosis is curable; that spontaneous healing of tuberculous infection occurs frequently, that healing of clinical tuberculosis may, but rarely does, occur; that permanent arrest is the most frequent termination of the disease in those who are later able to follow their usual occupations; that temporary arrest of longer or shorter duration occurs in all except the acute cases; and that continually progressive disease follows only upon several temporary arrests."

This is a sound and sane summary of "prognosis" in pulmonary tuberculosis. Fishberg¹⁸ and others, however, have written in the more optimistic view calling attention to the fact that while the frequency of tuberculosis is not decreasing, its power to kill is slowly but steadily diminishing.

Treatment.—A consideration of progress in the treatment of pulmonary and non-pulmonary tuberculosis may naturally be divided as follows:

1. Is sanatorium treatment worth while?
2. Artificial pneumothorax and its value.
3. Tuberculin and its value in treatment.
4. Sunlight treatment—heliotherapy.

Is sanatorium treatment worth while?

Much has been written pro and con on this subject. Wilkinson¹⁹ of England is the strongest upholder of the negative. He believes so firmly in the curative power of tuberculin that he sees no possible use in sanatorium or any other form of treatment except that of tuberculin. His theories are yet to be proved, however. The great majority of writers, while of the opinion that much can be done to promote the efficiency of sanatorium treatment, and that it is still far from perfect, still believe that it offers the greatest opportunity for the cure or arrest of the disease that we have at our disposal. Bailey²⁰ and MacCorison describe a scheme for promoting the efficiency of sanatoria by dividing patients into a "sanatorium" and a "hospital" class. In the former are placed all those patients who are really trying to get well and who cooperate with their physicians. To the latter class belong those who merely regard the sanatorium as a first-class boarding house. That this system is capable of bringing about excellent results has been clearly demonstrated in Massachusetts Sanatoria. Hawes²¹ describes what is done in Massachusetts to keep the patient well after leaving the sanatorium, and the methods whereby cooperation of local forces, public and private, may be obtained. Bolduan²² of New York, in a distinctly pessimistic view, speaks of the futility of taking patients out of bad surroundings to send them to a sanatorium and then

allowing them to return to the same bad conditions at home. Goldstein,²³ writing also from the New York point of view, urges that special factories or other specially conducted places of employment be created for giving suitable employment to post-sanatorium cases. Numberless other papers have been written on this subject. The general feeling seems to be that the sanatorium is worth while; that it does play a large part in our tuberculosis campaign, but that to make it occupy the place it really should hold, the treatment of the patient should begin long before he enters and long after he leaves the institution. This, as Pottenger²⁴ clearly points out, means the prevention, detection, and treatment of tuberculous infection in childhood and the supervision of the consumptive after leaving the sanatorium.

Artificial Pneumothorax and Its Value. The medical profession seems to have reached a saner point of view in regard to the value of this method of treatment than was the case a year ago. Saugman²⁵ states as his impression after seven years' treatment of over 200 cases, that during the first six months this treatment should be carried on only in a sanatorium or hospital and that "only in exceptional instances should pneumothorax be used on patients in their homes." Balboni²⁶ states that "the patient ought to follow sanatorium régime treatment at the same time." Unfortunately, few if any of his patients were actually in a sanatorium while under treatment, but were living at home, many of them in the crowded parts of the city. Balboni further states that "the patient should be fully informed that the treatment is long, tedious troublesome, and expensive, and not devoid of dangers." Lyon²⁷ describes results as obtained at the Rutland State Sanatorium in Massachusetts. Floyd²⁸ of Boston describes the class of cases suitable for this treatment. The general feeling is that this treatment in skilled hands, under careful supervision in a sanatorium or hospital, may do a great deal of good in a small group of selected cases who do not respond to other methods of treatment.

Tuberculin and Its Value in Treatment. As stated above, Wilkinson²⁹ of England is the foremost in the ranks of those who believe tuberculin will cure all forms of pulmonary tuberculosis. His claims are so extravagant, however, as to lose nearly all value. Bennett,³⁰ in a most useful little book urges great conservatism in the use of tuberculin in pulmonary disease. The opinion of the majority of those able to judge is that tuberculin, like artificial pneumothorax, may do good in selected cases, particularly those without fever, and who have reached a stationary condition; but that it should only be given by those skilled in its use and when the patient is under constant medical supervision. No comment is needed on the Friedman episode, which is now a thing of the past.

Sunlight Treatment or Heliotherapy.—That direct sunlight has a remarkably beneficial effect

on all forms of tuberculosis is a fact that has not been sufficiently impressed on the minds of the medical profession. The work of Rollier³¹ in Leysin, France, which had not attracted attention until very recently, is now a subject of almost universal comment and discussion. During the past year, not only Dr. Rollier's own description of his work, but the articles by Hinsdale³² and others have made the profession realize the importance of this hitherto neglected method of treatment. Patients are exposed to direct sunlight little by little, first beginning with the feet below the knees, for five minutes five times a day, and then increasing so that finally the entire body is bare for several hours at a time. This process of gradually exposing the skin to the sun must be carried on with care or else bad effects may follow. The results on the local process as well as on the patient's general condition are remarkable; were it not for actual photographs, they would scarcely be believed. Such treatment in modified form is now being carried on in this country, especially at Buffalo, New York, and at the Westfield State Sanatorium in Massachusetts. Heliotherapy is such a cheap form of treatment and under anything like adequate supervision is capable of bringing about such good results that its use is bound to become far more widespread. It would be an excellent thing if every physician were to read either Rollier's original papers or Hinsdale's description of Rollier's work.

Bovine Tuberculosis. The importance of the campaign for clean milk in the prevention of various forms of tuberculosis is becoming more and more recognized. Mitchell³³ states that "cows' milk containing bovine tubercle bacilli is clearly the cause of 90% of the cases of tuberculous cervical glands in infants and children." He refers particularly to the district around Edinburgh where tuberculosis in cattle seems to be particularly common. Although German observers do not confirm Mitchell's or Fraser's³⁴ figures, placing the percentage of bovine infection so very high, yet they agree that bovine tuberculosis is a much more important factor than was formerly considered to be the case. The teeth and faucial tonsils are the most important channels of infection in these cases.

Laryngeal Tuberculosis. Much has been written on laryngeal tuberculosis and its treatment. The general feeling in this country that this was secondary to a pulmonary process, and that its progress toward healing depended almost entirely on that of the patient himself, led to a somewhat over conservative attitude toward this condition and a tendency to let it entirely alone, except for mild palliative measures. At present this feeling seems to be changing somewhat and a tendency toward more radical measures to be taking its place. St. Clair Thompson³⁵ takes the conservative standpoint that "sanatorium treatment is at present the first and most valuable method we have for arresting laryngeal tuberculosis," and that "local measures are much more

promising under sanatorium treatment." This point of view, which places sanatorium treatment first, but which does not do away with local treatment, radically operative or otherwise, seems eminently sane and sound.

Non-Pulmonary or "Surgical" Tuberculosis. Of all forms of non-pulmonary tuberculosis, that of the cervical glands and of the genito-urinary tract has received the most attention. There has been a marked change in the attitude of most surgeons as to the treatment of tuberculous cervical adenitis. While there are still a few, notably Dowd³⁶ of New York, Fraser of Philadelphia, Ladd³⁷ of Boston, and others, who still claim that the so-called "radical operation for the removal of tuberculous cervical glands" is the best and safest course in all cases, the vast majority of the medical profession are now apt to look upon an operation in those cases "as an incident great or small as the case may be, in a course of treatment the most important part of which comes before and after operation." Hastings³⁸ of New York, Rollier³⁹ of France, Chadwick,⁴⁰ Hawes,⁴¹ and numberless others, have clearly demonstrated that in most cases of tuberculous cervical adenitis, by the removal of diseased tonsils and the cleaning up or removal of decayed teeth, and by proper hygienic constitutional treatment with food, fresh air, heliotherapy, tuberculin, and other measures, an operation is sometimes rendered absolutely unnecessary, and often reduced to some simple measure, such as opening and draining a small abscess cavity. In many cases, as shown by Hastings and Hawes, tuberculin alone seems to cause the glands to disappear, while the results obtained by Rollier and those who have tried this method of treatment show how unnecessary and useless the radical operation may be.

Genito-Urinary Tuberculosis. In genito-urinary tuberculosis, Barney⁴² has done a valuable piece of work in calling attention to the seriousness of tuberculous epididymitis and by showing in how large a percentage of cases even under excellent treatment this condition is followed by generalized tuberculosis of the genito-urinary tract. O'Neil⁴³ and Hawes have urged the use of hygienic measures and of tuberculin in all forms of tuberculosis of this region, before, after, and sometimes in place of, operative treatment.

Economic and Social Aspects of the Tuberculosis Problems. Progress in this direction has been along lines laid down sometime in the past. Chief among studies in the economic and social aspects of this disease are those which call attention to the dangers of open cases of tuberculosis and the need of preventing this source of infection if progress is to be made. Lampson⁴⁴ presents an interesting study of the spread of tuberculosis in tuberculous families showing that "67% of the individuals of these families (in which there was an open case of tuberculosis) excluding the centre cases, show evidence of tuberculous infection." The fact that his chief criterion of tuberculous infection was the von

Pirquet skin reaction, tends to detract from the force of his statement. MacCorison and Burns⁴⁵ of the North Reading State Sanatorium in Massachusetts, in similar fashion, have made a careful study of a large number of the families from which their patients came, with equally striking results. Their positive cases were ones of clinical tuberculosis, however, and not those with a positive skin tuberculin reaction only. Hawes⁴⁶ has carried this work still further and has shown the immense amount of good that can be done by following up patients discharged from sanatoria and by introducing a system whereby such patients can be kept under proper supervision and the members of their families examined.

CONCLUSION.

In conclusion it seems to us that in the diagnosis of adult tuberculosis, progress has been made not along any one line, such as the x-ray, tuberculin, etc., but by a realization that careful and detailed study of the patient, his history, constitutional signs and symptoms, as well as his lungs, will enable us to make an early diagnosis of this disease.

Bronchial gland tuberculosis in childhood, and its diagnosis with a clear conception of the symptom-complex of childhood tuberculosis, is a subject the importance of which cannot be overestimated. The increasing interest in condition by the medical profession is alone a distinct step in advance.

In treatment, the use of sunlight in all forms of tuberculosis is the great step forwards. Artificial pneumothorax has assumed its true position as an agent of value in a certain small group of cases; tuberculin is looked upon more conservatively in pulmonary disease and as an agent of great value in non-pulmonary tuberculosis.

From the economic and social side it is gratifying to note that childhood infection and its prevention and also the supervision of the consumptive *before* and *after* he goes to a sanatorium have been given the important consideration that they deserve.

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Reports of Societies.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY.

MEETING OF WEDNESDAY, NOV. 25, 1914, AT 8.30 P.M.
THE PRESIDENT, DR. WILLIAM DUFFIELD ROBINSON,
IN THE CHAIR.

SYMPOSIUM: THE PREVENTION OF DEFORMITIES.

SCHOOL LIFE AND THE ONSET OF DEFORMITIES.

DR. WALTER S. CORNELL, Director Division of Medical Inspection of Public Schools: An article appearing in a recent issue of *The Weekly Roster* called attention to the importance of orthopedic defects from a standpoint not usually considered by the physician. The broad viewpoint outlined we would do well as physicians to consider: "Deformity is to be seen everywhere. Its presence is deplorable as it tells in very loud words of the physical and emotional suffering of the afflicted and the terrible handicap they are doomed to carry through life. It is indeed to be deplored that the persons so afflicted in very large proportion could be, but were not,

treated in early life so as to have been cured or very greatly improved. The distress and resentment of many entering adult life, when they contemplate what might have been done for them, is not pleasant to consider."

Deformities considered in connection with school life are almost entirely those of the spine, comprising principally stoop shoulders and lateral curvature. We need only to mention the intimate relation of a contracted chest to tuberculosis, general malnutrition and the prevalence of lateral curvature to appreciate the major relative importance of these two physical defects to the entire remaining field of orthopedics. It is the consideration of physical defects in their association with others that forms the most basic principle of medicine in the study of growing children. Stoop shoulders and flat chest are in this paper considered as one condition. The causes of stoop shoulders are many. Workers in tuberculosis hospitals first noted the close association of pulmonary tuberculosis with the condition and provided nose and throat dispensaries that fresh air might be obtained by these patients through their noses as well as through house windows. The causal relation of low nerve tone and malnutrition, of defective eye-sight and hearing, and of low neuro-muscular tone has also been recognized. Most cases of lateral curvature are primary in causation and due to fatigue of the back muscles from over-long school periods. Our school curriculum should be amended to provide frequent periods of bodily freedom and relief. It will be remembered that "Ben Hur" asked to row alternately on the starboard and port sides of the galley, upon noticing the one-sided development of his fellow galley slaves. The routine medical inspection of children will prevent a certain proportion of the stoop shoulders and scoliosis by the correction of myopia and astigmatism, removal of nasal obstruction and treatment of catarrhal deafness. The great attack must be made from the standpoint of personal hygiene, the standpoint of direct corrective exercises. The system of corrective exercises just introduced into the Philadelphia schools is under the direction of the Department of Physical Education, which coöperates with the Department of School Medical Inspection. Special exercises are given these children in the schools and to be performed at home. I would make an earnest plea for the greater emphasis by orthopedists upon the common defects rather than upon new operations for serious and crippling deformities; a plea to the medical profession for the recognition of the symptom complexes in developing children; a plea for the medical care of patients upon the basis of hygienic living, with the courage to charge for advice which prevents disease; a plea for the better understanding of the intimate relationship of defects of the teeth to defects of the nose and throat; and finally, a plea for the recognition by medical colleges of the necessity of instruction to students upon the diseases and defects of children of school age.

TUBERCULOSIS IN RELATION TO DEFORMITIES AND THEIR PREVENTION.

DR. HENRY LING TAYLOR, New York City: Tuberculosis of the bones and joints is one of the commonest causes of crippling deformities which are a grave personal handicap and a serious economic loss to the community. In order to prevent the annual increase in the number of incapables

from this source, we must first direct our preventive measures against the dissemination of tuberculosis:—

1. By official inspection of herds and milk products, with the view of stamping out bovine tuberculosis and preventing the distribution of contaminated dairy products.

2. By segregation of the distribution of human tubercle bacilli and the disinfection of their sputa.

3. By the invigoration of children and youths and adults through a more hygienic life.

When a tuberculous joint is present we must make an early and accurate diagnosis and institute effectual treatment as early as possible, continuing it until the disease is quiescent. During this time the joint must be fixed in its most useful position so that when the disease is arrested the limb may still be serviceable, even if joint motion is diminished or absent. Severe terminal deformities of the limb may be corrected nearly always by safe and comparatively simple surgical operations and should be so corrected much oftener than they are. Without having exact figures, I do not think joint tuberculosis is quite as common in New York, and probably in other large towns in this region as formerly. We do not see so many severely deformed people on the streets. Whatever difference of opinion there may be about the bovine infection of tuberculosis there is no difference in opinion of the practical results of having children in close companionship with advanced consumptives. Time and time again I have found cases in the clinic in which the child was sleeping in an unventilated room with the father in an advanced stage of tuberculosis and three and four cases of tuberculous infection in the same family. These were not inherited cases, for we have seen the same thing in those of the same household but not related. In one case we found that the nurse of a baby was tuberculous. Failure in early and accurate diagnosis of deformity in bone and joint tuberculosis is as common as it is disastrous. Probably one-half of the fixed deformities are due to mistaken diagnosis or no diagnosis at all. The early diagnosis is not always easy even for specialists. The term "rheumatism" is one which is rapidly passing out of use in scientific language. "Rheumatism" means infection and the source should be ascertained. There should be willingness to examine thoroughly cases which seem to be trivial. The patient should be built up by general hygiene as in pulmonary tuberculosis, and probably a systematic application of sunlight to the naked skin, according to an exact and simple technique, is the most important advance in the last ten years in the treatment of surgical tuberculosis. In our fresh air home on Long Island we have just finished our eighth year and the average gain in children kept out in the open air has been seven pounds per summer per child for seven years. In the last year we have used direct sunlight treatment, putting the children in the sunlight for six hours a day without a stitch on them and the results have justified the belief that this treatment is probably the most important advance in the treatment of joint tuberculosis in the last ten years. In the local treatment of tuberculous joints, with fixation properly applied, you will have little need of traction. The limitation of activity is extremely important. If the simple principle is observed of fixing the joint in the most useful posture more than half of the bad deformities will be prevented. We operate freely in adults and sparingly in children.

THE STATUS OF THE GENERAL PRACTITIONER IN THE
PREVENTION AND CORRECTION OF DEFORMITIES.

DR. H. AUGUSTUS WILSON: Your committee has deemed it desirable to consider the status of the general practitioner in the prevention and correction of deformity. The orthopedic surgeon, being often the court of last resort in cases of progressive bodily deformity, is in a position to review all of the past history of the patient. One constantly hears that the family physician has given assurance that the child would outgrow its bow-legs; that the early pain of tuberculous bone disease was growing pains; that non-tuberculous processes were rheumatism; that normal feet of children required arch supports. The general practitioner in the country differs widely from the general practitioner in the city. The former is compelled, and the latter elects, to prescribe for all conditions. In city life there appear to be three types of the general practitioner: (1) The self-contained physician who elects to be the medical autocrat; (2) the distributor to specialists; (3) the coöperator. The self-contained autocrat attempts to emulate the country doctor without the necessity of so doing. The increasing specialization has become a necessity, because of the disasters often caused by the self-contained autocrat. The distributing general practitioner is usually a skilful diagnostician with insufficient confidence in his own knowledge of therapeutic measures. He selects a specialist to whom the patient is sent with instructions to remain under his care for the specific lesion. It is difficult to determine the divided condition of the patient affected with three or more so-called special diseases, as seen in the case of a young girl of sixteen who within a period of four months was elaborately studied by ten different specialists. The co-operating general practitioner is the highest type of all, for he combines the best and avoids the worst features of the others. It has been my experience that the best ultimate results have been obtained when I remained in coöperation with the general practitioner. In the great majority of conditions ultimately becoming orthopedic problems, the onset and early progress are so inconspicuous that in the beginning they defy accurate diagnosis. It would seem that the general practitioner has the largest opportunity to determine the relative importance of the various etiological factors in scoliosis in school children. In the early history of bone tuberculosis there is a period of uncertainty when the symptoms are attributed to other causes. The referred pains are usually classed as "rheumatism," a word which should be stricken from our vocabulary. The etiological importance of the eruptive fevers in the producing of joint affections; of typhoid fever in post-typhoid dislocations; of often remote gonorrhea in subsequent arthritis; of various factors in numerous forms of backache; and of pyorrhea in a vast variety of non-tuberculous joint affections, as well as the expedience of employing passive motion in treatment, is a problem worthy of close attention. The general practitioner has a most difficult task when he encounters congenital deformities. Whether he knows it or not, he is confronted with Wolf's law that all prolonged alteration of the function of any part of the body, either congenital or acquired, is surely followed by anatomical changes. He must analyze carefully the many conflicting statements regarding the advisability of immediate correction or of postponement. After all the various problem-students have made their re-

ports, it is often the province of the family physician to decide, for the family, upon the actual diagnosis and to direct the treatment. The various laboratory aids to diagnosis, when combined with an analysis of clinical findings, often materially assist in diagnosis. With the essential clinical phenomena as a basis, doubt can often be changed to certainty by the employment of radiography, blood tests, urinary analyses, and bacteriological research, but I know of nothing more confusing than a radiogram, unless it be the report of a radiographer who attempts to make a diagnosis without accurate clinical data. I believe there is entirely too much hastily conceived and misapplied treatment. The essential ingredient of any therapeutic measure should be skilful diagnosis. This is accomplished only by devoting time and discernment to a skilful weighing of all obtainable facts.

DISCUSSION.

DR. R. TAIT MCKENZIE: To the various factors bearing upon deformities I would add, the design of clothing, and the construction of furniture. I shall confine my remarks, however, to the subject of postural deformities that are non-tubercular. As soon as we assume the upright position the pressure of the whole body weight coming upon the feet gives a tendency to their eversion, thus threatening deformity of the arch. The next point at which the bony structure may yield is at the knee, and from the slightly bowed leg there may be the condition of knock-knee. With an exaggeration of the curve which may occur at the lower part of the back there is a compensating curve in the upper part of the back. The ribs are carried downward, the chest is flattened and the abdomen protrudes, giving the typical condition of bad posture with the consequent disarrangement of the contents of the upper zone of the abdomen and the long train of symptoms familiar to all. Many faulty positions are acquired in the school room where the child has to sit still for long periods of time. City conditions are also at fault, for the child has not the opportunity for play which gives the best development. This, however, is being corrected by the establishment of playgrounds. Occupation is another factor in etiology. In many occupations we are unable properly to use our muscular system. It is not surprising that we find motormen and hospital nurses flat-footed. The underlying principle in all these deformities is fatigue in some form. Much can be done in the schoolroom by breaking up the long periods of study by short periods of rest and exercise, and by tests in posture. It has been found that one of the chief causes of the stooping of children has been in the structure of the clothing by which a constant pressure is felt on the back of the neck. This is remedied by changing the cut of the garment.

DR. JAMES K. YOUNG: Three sources of infection in tubercular children are (1) cows' milk; (2) nurses and attendants; (3) infected rooms. The faucial tonsils seem to be the chief channels of infection. My clinical observation leads me to believe that suppuration does not so frequently occur in these instances of bovine infection as in the human. The importance of the source of infection being that of nurses and attendants has so impressed Mr. Thomas A. Edison that he has personally supervised a photo-play entitled the "Temple of Moloch," which has for its climax the discovery of the infection of two children by a tubercular nursemaid.

The photo-play is to be used by the Tuberculosis Commission in its warfare against the white plague.

The occupations which seem to be most suitable are not always the best adapted to or selected by the deformed person. Music, especially orchestral, wireless telegraphy and the telephone have afforded valuable means of livelihood. School teaching is a suitable occupation for those in whom the tubercular process has been arrested.

DR. CORNELL, closing: I have learned much to-night and shall urge upon our school authorities the importance of vocational training of crippled children and of the provision of ample sunlight in our school buildings. The psychology of crippling deformity is an aspect of the problem totally different from that of the mechanical treatment and claims our best endeavor. I would especially plead for treatment by the medical profession of crippling deformities from the preventive standpoint.

DR. TAYLOR, closing: The other papers have brought out much of importance and of practical suggestion. It is gratifying to know of the advance in postural work outlined by Dr. McKenzie. The subject of occupations for cripples I am especially interested in. I would not be misunderstood regarding the value of the x-ray. What I said was that in the early cases the x-ray frequently showed nothing. I do not wish to be understood as believing that you cannot get good results by traction, but, as I have said, if you will handle your case with fixation, properly applied, you will have little need of traction, and a little motion is worse than a stiff joint.

Book Reviews.

Practical Therapeutics. By DANIEL M. HOYT, M.D., formerly Instructor in Therapeutics, University of Pennsylvania, etc. Second edition, revised and rewritten. pp. 426. St. Louis: C. V. Mosby Company. 1914.

This volume includes in its discussion materia medica and prescription writing, together with a description of the most important new and non-official remedies accepted by the Council on Pharmacy and Chemistry of the American Medical Association. This second edition has been revised, as is peculiarly necessary in dealing with the general subject of drug therapeutics. It has been improved in various ways, as, for example, through the brief description of vaccine therapy, and practical suggestions regarding office dispensing. The subject matter is conveniently arranged under general headings descriptive of the use of various therapeutic agents. Throughout it is eminently practical, clearly written, and admirably arranged for reference. An extensive appendix of upwards of a hundred pages describes new and non-official remedies, which are coming to take an important place in therapeutics. An excellent index of drugs,

which is really much more than an index in the information it gives, concludes this generally satisfactory volume.

Diseases of the Skin, Including the Acute Eruptive Fevers. By FRANK CROZER KNOWLES, M.D., Instructor in Dermatology in the University of Pennsylvania; Clinical Professor of Dermatology, Women's Medical College of Pennsylvania. Octavo, 546 pages, with 199 engravings and 14 plates. Philadelphia and New York: Lea and Febiger. 1914.

This volume adds one more to the many published in recent years, devoted to the convenience of the student and general practitioner of medicine. In it the writer has tried to cover all of the eruptions that come on the skin and the adjacent mucous membranes, and includes the exanthemata. In the domain of therapeutics the author confines his recommendations chiefly to remedies that have been successful in his own hands, a wise resolve in a book addressed solely to students and general practitioners. Syphilis, pellagra, and tropical diseases are dealt with at greater or lesser length. The illustrations are numerous and remarkably good. Dr. Knowles is to be congratulated on producing a praiseworthy book in a field already pretty well occupied by successful predecessors.

A Text-Book of Pathology. With an Introductory Section on Post-Mortem Examinations and the Methods of Preserving and Examining Diseased Tissues. By FRANCIS DELAFIELD, M.D., and T. MITCHELL PRUDDEN, M.D. Revised with the coöperation of FRANCIS CARTER WOOD, M.D. Tenth edition. Completely revised. 8vo., 1144 pages, illustrated by 14 full-page plates in black and colors, and by 694 line and half-tone cuts. New York: William Wood and Company. 1914.

This edition is slightly improved over previous editions. It is possible in this, as in any text-book, to point out numerous omissions, some errors and instances of undue emphasis placed upon certain subjects. The text-book has been for many years one of the standards in pathology and it has more than held its own with succeeding editions. This edition is brought thoroughly up to date and considerably improved by an increased number of references and illustrations. The book as a whole is so excellent that it does not seem fair in a short review to call attention to the few minor deficiencies which can be found.

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BIOLOGIC ASPECTS OF EARLY MARRIAGE.

In the July, 1914, issue of the *Journal of Heredity*, the official organ of the American Genetic Association, was published a brief paper by Casper L. Redfield, of Chicago, on the "Results of Early Marriage," raising the question whether it leads to the production of desirable children and offering a reward of \$200 for the reporting of human cases "where rapid breeding led to good results from an intellectual point of view." The reward, which was deposited with the Association in April, 1914, has recently been returned to the donor, no one having produced evidence of the kind required.

In an analysis of a large amount of statistics, Mr. Redfield has been able to find no person of eminence produced among families in which there are more than three generations in a century. In his conclusions from this, he says:—

"If the majority of people are produced by breeding faster than three generations to the century, and yet no very eminent person was ever produced within that range, the conclusion is obvious. In 33 states the legal age of marriages ranges from 15 to 19 years for boys, and from 13 to 17 for girls. In the same states there are many marriages at less than legal age which are considered valid unless objection be made. Such early marriages result in rapid generations, and continuous rapid generations lead to the production of mental and moral defectives."

In short, Mr. Redfield believes that the optimum conditions of human breeding would be reached by the production of the majority of children from parents of an average of not less than 33 1/3 years.

It seems that these conclusions rest on the basis of a possible common fallacy which underlies many eugenic and other arguments,—namely, the mistaking of cause for effect. It is not that early marriages, resulting in rapid generations, lead to the production of mental and moral defectives; but that individuals of the type tending to produce defectives are more likely to marry early, hastily, and unwisely than the more discreet individuals of higher type, who postpone marriage until they can achieve better pecuniary environmental conditions. Such conditions, in turn, often react favorably on the offspring, giving even the weaker children of older parents educational and hygienic advantages which enable them to surpass the physically stronger children of younger but poorer parents. Could similar advantages have surrounded the parents of higher type during an early marriage their output in quantity and quality of desirable children might have been much greater. In other words, it is not late breeding which secures intellectual or other superiority, but the accrued circumstantial advantages of environment which oftener surround late than early marriages.

Even if it be true that there are no persons of intellectual eminence among the offspring of families breeding faster than at the rate of three generations to the century, this does not prove that the breeding of good stock from younger marriages is not desirable. After all, the bulk of the world's work is and always must be done by persons not of intellectual eminence. Such people are needed only in moderate numbers as leaders. What is fully as essential, and what we are in far greater danger of losing, is a rank

and file of humanity made of the most healthy, vigorous physical fibre. Such individuals are most likely to be bred from parents during the decade of greatest reproductive energy, from 20 to 30. Desirable parents marrying at 20 and producing their children during these years would have an average age of 25 at the birth of desirable children, or four generations in a century. That this is not now the case is because of the economic conditions, which do not deter the rash persons of undesirable stock, but do deter the thoughtful individuals of higher type from early marriage.

As a matter of fact, there is here a conflict, as in many other human relations, between two types or ideals of civilization, the racial and the individual. Doubtless the interests and advantages of the individual are best subserved by late marriage, leading to fewer offspring surrounded by a superior environment. This process, as the experience of history has shown, undoubtedly leads to the production of the highest individual types, but unfortunately it ultimately leads to family and race extinction. The racial ideal, on the other hand, aims at the production of the greatest number of individuals of a good type, though not of the highest, with early marriages surrounded by sufficiently good environment to ensure proper development and perpetuation of the type. Such a method inevitably involves sacrifice of individual advantages for the sake of guaranteeing race survival.

Probably the biologic desideratum for any race, or for the human family as a whole, is not slow, late breeding, which is only Malthusianism under another form, but the maintenance of a majority of physically superior individuals bred under good environment from parents during the third decade of life. Gradual improvement of this stock could be effected by encouraging early marriage of desirable parents, which would increase physical race efficiency not only directly, but indirectly by lessening the amount of venereal disease among the higher types. Intellectual leaders are bound always to occur as "sports" under any method of breeding. Of course such discussion is academic rather than practical, since these questions will ultimately be settled not by conscious but by spontaneous evolution. That human type, however, will probably in the long run survive and dominate which by means of early marriage can most effectively combine the racial with the individualistic ideal in civilization.

THE TREATMENT OF RUPTURED TUBAL PREGNANCY.

IN another column of this issue of the JOURNAL we publish a valuable study by Dr. Young, based on an analysis of sixty-two cases of ruptured tubal pregnancy occurring in the gynecologic service of the Boston City Hospital since 1902. The chief and most important conclusion derived by the author from this study is the undesirability of immediate operation in every case, a conclusion in which we most heartily concur with his judgment. Not many years ago it was the teaching of practically all surgical clinicians that every case of ruptured tubal pregnancy should be operated upon at sight, and doubtless many lives have been sacrificed to this well-intended but misplaced surgical zeal. As a matter of fact, it is exceedingly seldom that a patient dies of the first, or even the second hemorrhage following ruptured tubal pregnancy. It is only repeated hemorrhages, or injudicious intervention, which give the *coup de grâce* in most cases; and in not a few, as is well known, nature may even effect a spontaneous cure. The desirable time for operation in tubal rupture is not when the patient reaches the hospital exhausted by her journey and perhaps just at the close of a fresh hemorrhage, but after several hours of rest and warmth in bed, with judicious stimulation, when the operation can be done upon a patient with improving general condition, rather than at the moment of maximum depression. These facts were recognized by Robb in 1908 and their truth is reëxemplified with additional force in the present article by Dr. Young. There are, of course, cases in which immediate operation is desirable in the presence of signs of obviously progressive hemorrhage. These, however, are the desperate few; the majority benefit by a course of more moderate conservatism.

As to the type of operation to be preferred opinions differ. It seems, however, that with a clear diagnosis, the abdominal route is almost invariably to be preferred. Operation from below is an operation in the dark, without positively reliable control of hemorrhage and without opportunity to inspect and cleanse the peritoneal cavity.

In the differential diagnosis of tubal abortion from tubal rupture there are a few signs of value. In tubal abortion (the ovum being lodged near the fimbriated extremity of the tube), there is relatively little or no concomitant uterine

enlargement, the hemorrhage is less profuse and the abdominal symptoms less urgent than in tubal rupture. In tubal rupture not only are the hemorrhage and abdominal distress greater, but, the ovum being lodged nearer the proximal extremity of the tube, there is usually uterine enlargement corresponding with the duration of the pregnancy.

In the present series eight of the fifteen fatal cases are said to have had shock as a cause of death. Doubtless in some of these the shock was due primarily to injudiciously precipitate operation at a time of minimum resistance immediately after a hemorrhage. In some, however, it is probable that life might have been saved by the employment of transfusion, a procedure which has been applied to only a few of this series of cases. We cannot agree with Dr. Young in his attitude towards transfusion. Given a judicious selection of the time for operation, the recovery or death of a patient with ruptured tubal pregnancy will depend upon the amount of blood lost, the operative shock being in itself small and approximately the same in all cases. Where the hemorrhage has been so great as to portend death, a transfusion promptly done, under the anesthesia of the original operation, as soon as the source of bleeding has been controlled, will generally turn the scale, and, by replacing a considerable part of the blood lost, makes it possible for the patient to live. Salt solution, which merely replaces the volume of the circulation, is no adequate substitute for whole blood. It would seem that ruptured tubal pregnancy is preëminently a condition in which the beneficent procedure of transfusion is a most valuable life-saving measure. It is by no means indicated as a routine procedure, but when employed in critical, borderline, or even moderately exsanguinated cases, tends to expedite convalescence, and to lessen shock and liability to sepsis, even if it does not actually save a patient who otherwise would have died.

With judiciously conservative selection of the time for operation, with the employment of the abdominal route, and with the performance of transfusion in all cases of whose recovery any reasonable doubt is entertained, the mortality of ruptured tubal pregnancy should be diminished to an irreducible minimum.

NEW YORK'S NEW SANITARY CODE.

For some time past it has been felt by the New York City health department that a new sanitary code should be enacted, for, as Commissioner Goldwater expresses it, the code which has been in force for many years has been patched and padded from time to time, until it lacked continuity, coherence and clearness. Accordingly, an entirely new code has been adopted by the board of health, and this, while re-embodiment the provisions of the old in simplified terms and in more logical arrangement, includes twenty new sections which are in large measure the result of recent observations and investigation, and which, it is believed, will effect a wider application of the principles of sanitation.

It has been asserted more than once that important legislative powers have been unwarrantedly seized by the small group of officials constituting the board of health, but Dr. Goldwater explains that these powers, and the responsibilities attending them, have not been seized at all, but, on the contrary, have been thrust upon the board by law, and been most reluctantly assumed. Always conscious of its grave responsibility, it has, in exercising the legislative powers conferred upon it, endeavored to fortify its position with authoritative opinion and advice, and for many years it has been the practice of the department, when considering new legislation to correspond with the advance of medical science, to call into counsel the leading members of the profession and to secure a consensus of expert opinion before taking action. In order to systematize consultations of this kind there was established some time since a medical advisory board, and among its present members are such men as Dr. H. M. Biggs, state commissioner of health, and Drs. A. Jacobi, Simon Flexner, William M. Polk, and T. Mitchel Prudden. It has been the aim of the present head of the department to make its legislative enactments an expression, not of the will of the three men composing the board of health, but of the civic ideals and the conscious will of the people themselves. Last year, for the first time, the department asked the systematic coöperation and counsel of laymen, as well as of medical men, and early in 1914 an advisory council consisting of 150 representative men and women was organized. One of the chief objects in establishing such a body was to bring into relation with the department representatives of those trades and

interests which, for one reason or another, fall under its supervision and are in daily contact with it; for it was felt that regulations affecting any industry or occupation should not be adopted except with the cognizance and under the advice of representatives of those regulated. The members of this new advisory council, as well as of the medical advisory board, have therefore participated in the revision of the sanitary code; so that, while the code represents finally the judgment of the three officials who voted upon it, it is based upon the research, experience and deliberation of a large body of qualified and interested citizens who were called to consider it carefully, section by section, before it was presented to the board of health for enactment. The death-rate in the city in 1914 was 13.4, the lowest yet recorded, and it is reasonable to allow that this excellent showing was due in some measure to the enforcement of the existing sanitary regulations. It is hoped by the department that by means of the additions which have now been made to these a still lower rate may be reached.

The new sanitary code is composed of eighteen articles, the first being devoted to definitions, while in the succeeding ones the contents are grouped under headings alphabetically arranged. For instance, the subject of one article is animals, and in this there are sections relating to the reporting of glanders and other contagious animal diseases, to the destruction of diseased animals, and to numerous other matters connected with animals, alive and dead. Some of the additions to the code are of special interest. With a view to the prevention of epidemics resulting from food contamination, it is now required that physicians, in reporting cases of typhoid, diphtheria, scarlet fever, epidemic dysentery, and septic sore throat, must state whether the patient is engaged in the handling of milk or other dairy products or is employed as a cook, kitchen helper or waiter. A new section prohibits the distribution from door to door of so-called samples of medicine intended for internal use, a method of advertising which has been quite extensively used to increase the sale of harmful nostrums, and particularly of those containing habit-forming drugs. In regard to the sale of patent and proprietary medicines it is prescribed that the ingredients entering into their composition shall be mentioned on the package or, as an alternative, that the names of such ingredients shall be filed with the health

department. The employment in bakeries of persons suffering from communicable diseases is prohibited by a state law, and under the new code this rule is extended to include persons employed in all places where food or drink is "prepared, cooked, mixed, exposed, bottled, handled, manufactured, offered for sale, or sold." Another section specifies that in the manufacturing, handling and sorting of cigars and cigarettes no person engaged in such work shall at any time touch with the lips, teeth or tongue any cigar, cigarette or tobacco to be offered for sale, and manufacturers are required to post in their establishments warnings against such practices. In factories and other places where, in the regular course of the business, dust, gases, fumes, etc., are generated or released in quantities constituting a menace to health, efficient suction devices must be provided. The owner, lessee, or other person having the management of any salt marsh land, inland swamp, sunken lot, abandoned excavation, or any place on or in which water becomes stagnant, and may thus lead to the breeding of mosquitoes, is required to drain or fill in the place, or to employ such other method as will at all times prevent the breeding of mosquitoes there. The private hospitals in the city which are established and maintained by benevolent corporations, are invariably chartered by the state, but in addition to these there have been operated an increasing number of small private hospitals, not in receipt of public funds, which are not charitable institutions, and which do not come under inspection by the agents of the State Board of Charities. Conditions having arisen which pointed clearly to the necessity for the control and regulation of establishments of this kind, it was decided by the board of health to take action in the matter, and, accordingly, in the new code it is provided that hereafter no person or corporation other than those specifically authorized by law shall "conduct or maintain any private hospital or institution wherein human beings may be treated or cared for by physicians or midwives without a permit therefor issued by the board of health."

ADMISSION TO THE RUTLAND STATE SANATORIUM.

THE Rutland State Sanatorium ever since its opening in 1898, has been reserved, according to

the ruling of the board of trustees, for early and favorable cases of pulmonary tuberculosis. Prior to 1910, when the present board of trustees took charge, applicants for admission to this sanatorium had first to be examined by a special Rutland examiner, who passed upon the patient's fitness as a patient for this institution. There were ten or twelve such examiners scattered throughout the state. In addition to passing this examination, no patient could be admitted unless he or his relatives and friends could provide the necessary \$4.00 a week.

Under this system the average number of really incipient cases at Rutland was about 27-28%, occasionally reaching as high as 32-33% of the whole. The remaining patients were in the advanced or moderately advanced stages of the disease. When the present board of trustees took charge of the Rutland Sanatorium, the old system of special examiners was discontinued and an elaborate application blank was prepared, which any registered physician in this state could fill out and by this means make application for admission to Rutland for his patients. The payment of \$4.00 a week as an essential requirement for admission was also done away with. As a natural result of this change in the method of admission to Rutland, at first the number of incipient cases admitted fell to 18-20%. Gradually, however, as the medical profession became more proficient in the early diagnosis of tuberculosis, the percentage of incipient cases has risen so that now the proportion is about the same or better under the present system than it was formerly under the old system of special examiners. The fact still remains, however, that at present, as in the past, two-thirds or more of the patients at Rutland, an institution supposed to be reserved for the early and favorable cases of tuberculosis, are in the moderately advanced or advanced stages; likewise the unsatisfactory condition continues, in that really favorable patients, especially among men, must wait two to three months and sometimes four months before their names are reached, for admission to Rutland.

In order to improve this state of affairs and to allow of the admittance of early cases without this long delay, the board of trustees at its last meeting, held Jan. 5, 1915, passed the following vote:—

Voted, That whereas the Rutland State Sanatorium is reserved for early and favorable cases

of pulmonary tuberculosis, in future all patients admitted to the Rutland State Sanatorium be placed on trial for a period of one month in order to ascertain their eligibility for this institution. If at the end of this period of one month patients are found not to be suitable cases for the Rutland Sanatorium, they are to be given opportunity of transfer to one of the other state sanatoria and their names placed at the head of the list for this purpose.

It is not believed that this vote will cause any hardship to any patient. Arrangements will be made to transfer patients, who after their period of probation are found to be unsuitable for the purposes of the Rutland Sanatorium, to some other sanatorium or to a local hospital. It will result, it is to be hoped, in shortening the waiting list and in reducing to a reasonable time the period of waiting which incipient and favorable cases of tuberculosis now have to undergo before admittance. It will also result, it is hoped, in making Rutland an institution in fact, as in name, for incipient consumptives, while in addition it ought greatly to improve the atmosphere and morale of the sanatorium. It will doubtless cause considerable discontent and mental anguish among those patients who after a month's time are found not suitable for Rutland and who have to go elsewhere. It will likewise cause some dissatisfaction among physicians who may not agree with the decision reached at the sanatorium. It is hoped, by making this statement and by explaining the reasons for this change and the causes which have made it necessary, that the medical profession of the state will see the wisdom therefor and will coöperate with this board in making the change successful and beneficial.

CONTAMINATION OF FOOD WITH FECAL MATTER.

ALL persons who have had active experience in the effort to improve sanitary conditions in backward rural districts agree that one of the most difficult problems is to convince the people that their water supplies are in reality not so pure as they seem to the unaided senses. If water is clear, cold and plentiful, and devoid of bad taste or odor, the average person, unedu-

ated in the refined methods of modern analysis, is loth to believe that it can carry within its sparkling depths anything so dangerous as the germs of disease. In fact, it has been practically known for a long time that a considerable portion of certain rural populations consumes by accident more or less human excrement, but in order to convince the people themselves that such is the case, some incontrovertible scientific proof was necessary. Believing that such actual demonstration would have a high educative value, Professor Stiles of the Hygienic Laboratory has succeeded in evolving a method for this purpose.*

The fundamental principle underlying the method consists in the fact that certain animal parasites, namely the *entamoeba coli*, *lamblia*, *trichomonas*, *ascaris lumbricoides*, and *trichuris trichiura* are found in the intestines of man only, not being found in the alimentary tract of any animal and having no free living state outside the human intestines, the transmission from person to person occurring in either spore or egg form. Therefore any person who has in his intestines one of these parasites must necessarily have obtained it by swallowing human excrement. The Division of Zoölogy of the Public Health Service applied this test to 2372 persons taken at random in twelve different localities in three states. They found that 425 out of the 2372 had one or more of these strictly human parasites in their stools, thus proving by zoölogical methods alone that 17.9% of the persons examined had unwittingly partaken of food or drink contaminated with human feces.

The impartation of such information to a community grown lax in its personal sanitation and lukewarm to the efforts of health officers to better conditions, should certainly have a salutary effect. Indeed, it would seem that people who failed to be awakened by a knowledge of this kind were hopelessly asleep and incapable of any kind of progress.

MEDICAL NOTES.

AMERICAN SOCIETY FOR THE CONTROL OF CANCER.—A meeting of the American Society for the Control of Cancer was held in Boston on Jan. 14, with addresses by Dr. J. Collins Warren, Dr. Edward Reynolds, and Prof. Dr. W. T. Sedg-

* Annual Report of the Surgeon General, U. S. Public Health Service, 1914, p. 22.

wick, of the Massachusetts Institute of Technology.

THE EPIZOOTIC OF FOOT AND MOUTH DISEASE.—With the gradual subsidence of the epizootic of foot and mouth infection, there is a gradual removal of the national quarantine regulations by means of which the disease has been brought under control. On January 13, the quarantine of livestock was suspended in many counties of Indiana, Kentucky and New York. In Massachusetts movement of livestock in non-infected areas is now permitted.

SOCIETY OF AMERICAN BACTERIOLOGISTS.—The Society of American Bacteriologists held its annual meeting in Philadelphia at the Laboratory of Hygiene, University of Pennsylvania, Dec. 29, 30 and 31, 1914.

The following officers were elected: President, D. H. Bergey, M.D.; vice-president, John Weinzirl, M.D.; secretary-treasurer, A. Parker Hitchens, M.D.; council, K. F. Kellerman, M.D., W. A. Stocking, Jr., M.D., R. E. Buchanan, M.D., R. J. Conn, M.D. Delegate to A. A. A. S., M. J. Rosenau, M.D.

The next regular meeting of the society will be held in Urbana, Illinois. The chairman of the local committee is Professor H. A. Harding. A special meeting of the society will be held in San Francisco during the summer.

PELLAGRA AND POLIOMYELITIS IN MISSISSIPPI.—During the month of November, 1914, 603 new cases of pellagra and nine of poliomyelitis were reported in the state of Mississippi.

TUBERCULOSIS IN NORTH CAROLINA.—In the weekly report of the United States Public Health Service for Jan. 15, is reprinted the following extract from the message of Governor Craig to the North Carolina General Assembly on Jan. 7. It evidences well his appreciation of the seriousness of the problem of state control of tuberculosis and indicates some of the measures which it is expected may be taken in North Carolina to meet it:—

“The problem of dealing with tuberculosis is most serious. In North Carolina it has been ascertained that 18,000 people are the victims of this disease. Many may have it of whom we do not know. It is an ever-present plague that stalks abroad at noonday, and one-seventh of all the deaths in the state are from this dreaded disease. The state sanatorium was established in response to the demand that something must be done for the afflicted, and to stop the ravages of the plague. In my opinion this institution, with its present scope and efficiency, is utterly incapable of dealing effectively with the situation. As an institution for the purpose of educating people to care for themselves and disseminating knowledge of the disease, it cannot be as effective.

tive as could a bureau established for the purpose of sending literature to every person in the state known to be afflicted. Such literature could present the situation more intelligently to the people and with more efficacy than could be done by a few patients who are fortunate enough to secure admission to the small establishment at Sanatorium. There are now about 90 patients in this institution. It is most humanely and most ably managed. Yet it is altogether inadequate to deal with this stupendous proposition that so vitally affects the people. It has done good in individual instances, but there are thousands in the state who cannot gain admittance, and who will desire admittance when its efficiency is recognized. This institution can never care for those entitled to admission. On the present plan, the whole revenue of the state could not meet the demand. *It is one of the highest obligations of the state to deal with this disease, to do all possible to prevent it, and to cure those who have it.* I hope that this general assembly can work out a practical method that will be effective."

ASSOCIATION OF LIFE INSURANCE PRESIDENTS.—The recently published proceedings of the eighth annual meeting of the Association of Life Insurance Presidents, held in New York City on Dec. 10 and 11, 1914, includes several papers on the relations of life insurance to questions of public health. Among these may be mentioned one by Mr. Rudolph Hering on the "Relation of Sanitary Engineering to Public Health," and one by Mr. Arthur Hunter entitled "Can Insurance Experience be Applied to Lengthen Life?" Mr. Hering summarizes the work and methods of sanitary engineering under six groups, dealing respectively with water supply, air supply, street cleaning, river cleaning, refuse removal and sewerage removal. In all these he concludes that public works relating to sanitary engineering have reached a point of development based on sufficient knowledge and experience to present satisfactory solutions in practically all cases. Mr. Hunter believes emphatically that insurance experience can successfully be applied to lengthen life. The statistics gathered by insurance companies are particularly of value from the information which they afford relative to hazardous occupations, tuberculous family history, history of important infections such as rheumatism, typhoid, or syphilis, cardiac and renal physical defects, addiction to alcohol and excessive emaciation or obesity.

EUROPEAN WAR NOTES.—On Jan. 13 a Japanese Red Cross unit sailed from New York aboard the *Megantic* for Southampton, England, where it will be stationed at the Netley Royal British Naval and Military Hospital, to which it has been assigned for duty. The unit consists of Surgeon-General Suzuki, Dr. T. Oshima, and 21 nurses.

On Jan. 16 a cargo of sera, antitoxins, adhesive plaster, bandages, and 1500 pounds of chloroform was shipped to London from the American Red Cross at New York aboard the *Minnetonka*.

The American Field Ambulance Association, Incorporated, has been formed by Charles E. Cotting of Boston, Robert Walcott of Cambridge, Frank Cheney, Jr., of South Manchester, Conn., Theodore S. Farrelly of New York City, and Samuel Thorne, Jr., of Rye, N. Y. The objects of the corporation are to operate a field ambulance service in France, Belgium and elsewhere, to relieve the sick and wounded, and perform such other work as may seem necessary, and to acquire such property as these purposes of the corporation shall require.

The principal office of the corporation is at 19 Cedar Street, New York City. The organization is neutral and is operating subject to the rules of the Geneva Convention, which entitles its members to wear the red cross. For financial support it depends entirely on the generosity of Americans, and since the need of funds to maintain equipment and support the personnel is urgent at present, contributions may be sent to any of the incorporators or to Samuel Thorne, Jr., treasurer, 19 Cedar Street, New York City.

An unauthenticated report in the public press states that Dr. Alexis Carrel, at his hospital in Lyons, France, has succeeded in grafting an entire forearm and elbow-joint from a moribund to a wounded patient. If this be true, it is not only a great personal triumph for Dr. Carrel, but a demonstration of the value of experimental surgical research.

On Jan. 23 the total of the New York Belgian relief fund amounted to \$862,573.52; the New York Red Cross fund to \$444,312.76; the New York Jewish relief fund to \$320,097.36; the American Ambulance Hospital fund to \$312,397.15; the Prince of Wales fund to \$105,763.88; and the American Polish relief fund to \$16,851.37.

On Jan. 24 the total of the New England Belgian relief fund amounted to \$179,287.17; the Massachusetts Red Cross fund to \$103,297.66; the Boston branch of the American Ambulance Hospital fund to \$51,636.45; the New England Jewish relief fund to \$27,273.35; and the Boston Polish relief fund to \$14,154.97.

MORTALITY FOR WEEK ENDING JANUARY 15, 1915.—The Department of Health yesterday gave out the following figures concerning the mortality during the week ending January 16: The increase in the mortality from acute bronchitis, lobar pneumonia and broncho-pneumonia, to which attention was called in last week's bulletin, continued during the past week, the number of deaths totalling 311 as against 246 during the corresponding week in 1914. The increased mortality from these causes was more than offset by the decreased mortality from certain other

causes, especially measles, scarlet fever, pulmonary tuberculosis, Bright's disease and nephritis and violence, so that the death-rate from all causes combined was 14.49 per 1000 of the population, against 14.86, a decrease of .37 of a point, which is equivalent to a relative decrease of 41 deaths in the week's mortality.

The increase in the mortality during the past week was chiefly among children under five years of age, and especially so among children under one year of age, there being 51 more deaths reported at this latter age group. The mortality at the other age groups was somewhat lower than in the corresponding week of 1914.

The death-rate for the first three weeks of this year was 14.73 per 1000 of the population, as against 14.62 during the corresponding period in 1914, an increase of .11 of a point.

HARVEY LECTURE.—The seventh in the current series of lectures before the Harvey Society will be delivered on Saturday evening of this week, Jan. 30, at the New York Academy of Medicine, by Professor Hans Zinsser, of Columbia University, on "The More Recent Developments in the Study of Anaphylactic Phenomena."

BEQUEST TO THE ROCKEFELLER INSTITUTE.—The will of the late Henry Rutherford, recently admitted to probate, contains a bequest of \$200,000 to the Rockefeller Institute for cancer research.

BOSTON AND NEW ENGLAND.

LAWRENCE MATERNITY ASSOCIATION.—The Lawrence (Mass.) Maternity Association has been formed to aid those women whose circumstances do not permit the employment of regular medical attendance with nursing, at time of childbirth. The central office at the Lawrence General Hospital will be open at all hours, day and night. Patients may register, and the services of physicians and nurse may be secured. It is urged that registration be made at least three months before expected labor, thus giving the patient the benefit of the nurse's visit beforehand. Care and instruction will be given from time to time by the physician and nurse, and the patient will receive daily visits after delivery as ordered by physician. A moderate fee will be charged for services, which will be explained at time of registration.

AESCULAPIAN CLUB OF BOSTON.—The mid-winter meeting of the Aesculapian Club of Boston was held at the Harvard Club on Saturday evening, Jan. 9, being preceded by a dinner of the club at which were 103 members and the guests, Dr. Oscar Dowling, president of the Louisiana Board of Health, and Mr. Norman Hapgood, editor of *Harper's Weekly*. The meet-

ing was at 9 p.m., there being present, beside the members, about 125 guests. The first speaker, Dr. Dowling, gave a very interesting talk, narrating in some detail the history of his board from early days, its present trials and successes, its tour of the state with cars of exhibition and instruction, and its methods and results in cleaning up various objectionable towns and places. Mr. Hapgood's talk was general and on the whole well chosen and complimentary to the profession. He touched on the failure of segregation in the regulation of prostitution, on the magnitude of the question of prohibition, on the dissatisfaction of the public in regard to the "alienist" testimony of experts at trials, and on various other matters.

ANNUAL MEETING BOSTON MEDICAL LIBRARY.

—At the annual meeting of the Boston Medical Library, held Jan. 12, 1915, the former officers were reelected: Dr. John W. Cummin was elected to the committee on library and finance, in place of Dr. Morton Prince, who retired after sixteen years service; Dr. Reginald Fitz became a member of the committee on medical and social meetings; Dr. Daniel F. Mahoney a member of the committee on membership and elections; and Dr. Walter Channing and Dr. John W. Bartol were elected vice-presidents. Dr. Francis W. Peabody gave an interesting talk, illustrated by the stereopticon, on "Western Medicine in China." According to the report of the librarian the library now contains 82,275 books and 57,035 pamphlets and use of its facilities has been made by 14,105 readers during the past library year, two-thirds of these being medical students and the public. The number of readers has shown a progressive increase from year to year. The total membership of the library is now 742, a gain of 43 over that of last year.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending Jan. 19, 1915: Diphtheria, 63, of which 2 were non-residents; scarlatina, 65, of which 5 were non-residents; typhoid fever, 3; measles, 64; tuberculosis, 45, of which 2 were non-residents. The death-rate of the reported deaths for the week was 16.40.

Massachusetts Medical Society

FRANKLIN DISTRICT MEDICAL SOCIETY.—The Franklin District Medical Society held a meeting at the rooms of the Greenfield Club, Greenfield, on Jan. 12, 1915, the program being entitled "Health Day." Dr. J. E. Urquhart of Ashfield, president, was in the chair, and Dr. G. P.

Twitchell of Greenfield acted as secretary. Dr. William C. Hanson read a paper on "The Functions of the State Department of Health"; Dr. Francis G. Curtis, chairman of the board of health of Newton, read on "The Benefit to the Community of the Health Office"; Mrs. William Lowell Putnam of Boston on "The Benefit to the Producer of Clean Milk." The papers merited the interesting discussion which followed, bringing out the needs of better medical education and standards in the country districts. The following took part in the discussion: Dr. J. S. Hitchcock, state inspector of health for the Northampton district, Dr. N. P. Wood and Mr. Moody of Northfield, Dr. P. W. Goldsbury of Warwick, Dr. Urquhart of Ashfield, Drs. B. P. Croft, G. P. Twitchell and F. W. Donahue of Greenfield, Dr. H. A. Sutor of South Deerfield and Messrs. Covell of Shelburne and George Moore of Greenfield.

Current Literature

MEDICAL RECORD.

JANUARY 2, 1915.

1. FISHBURG, M. *Artificial Pneumothorax.*
2. BRICKNER, W. M. *A Simple, Easily Regulable Method of Applying Abduction in the Treatment of Shoulder Disability.*
3. PETERS, L. S. *Tuberculin in Pulmonary Tuberculosis.*
4. BECHET, P. E. *Diseases of the Skin in Pregnancy.*
5. BARNES, F. H. *Medical Inspection of Schools in Connecticut.*
6. JOHNSTON, J. C. *A Suggestion in Cases of Late Operation for Intestinal Obstruction.*
7. PAGE, R. W. *Etiology of Pellagra.*

JANUARY 9, 1915.

1. *LYDSTON, G. F. *A Unique Case of Syphilis of the Cranium and Spine; with Remarks on Syphilitic Bone Dystrophy.*
2. GLEASON, W. S. *Obscure Causes of Disease.*
3. STARKEY, F. R. *Intestinal Stasis.*
4. BANDLER, S. W. *The Use of Pituitary Extract in Obstetric Practice; with Some Critical Observations on "Twilight Sleep."*
5. FRAZER, T. *The Significance of the von Pirquet Test.*
6. VON WEDEKIND, L. L. *The General Use of Distilled Water, Thereby Securing the Elimination of Toxins Leading to Arterial Changes, and the Elimination of Water-Borne Disease.*
7. SCHLESINGER, M. F. *Reasons for Discrepancies in Reports on the Wassermann Reaction, from a Technician's Side.*
8. PUFFY, O. H., and PITFIELD, R. L. *Enormous Tumor of the Uterus.*
9. HUSKIN, A. L. *Pomphigus Follicaceus Neonatorum.*

1. Lydston reports a case of late syphilis of the cranium and spine without symptoms referable to the bony structures involved, and without disturbance of brain or nerve function. Such lesions, he says, are due not to pressure or corrosion but to perversion of nutrition resulting from luetic toxemia which affects

especially the sympathetic system. In cases of this sort the bones of the face are more often selected than those of the cranium and spine, the tissues supplied by the fifth nerve being particularly susceptible. There may or may not be gummatous infiltration elsewhere. The treatment is necessarily surgical as well as specific. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JANUARY 9, 1915.

1. *WILLIAMS, J. W. *The Limitations and Possibilities of Prenatal Care, Based on the Study of Seven Hundred and Five Fetal Deaths Occurring in Ten Thousand Consecutive Admissions to the Obstetrical Department of the Johns Hopkins Hospital.*
2. MARTIN, W. F. *Value of Hydrotherapy in Urology.*
3. *THOMAS, G. T., and BRAASCH, N. F. *The Practical Value of Chemical Tests of Renal Function in Surgical Conditions of the Urinary Tract.*
4. KERRISON, P. D. *The Treatment of Advanced Tympanic Deafness. Clinical Observations Bearing on the Problems Involved.*
5. JONES, E. L. *The Relation of the Rhinopharynx to the Middle Ear and Mastoid.*
6. FOWLER, E. P. *The Origin of Labyrinthine Rest Tone.*
7. *NOVAK, E. *The Atropin Treatment of Dysmenorrhea.*
8. NAVAN, J. F. *The Endowment of Motherhood.*
9. ELLIS, A. W. M., CULLEN, G. E., and VAN SLYKE, D. D. *The Amino-Acid Content of the Blood and Spinal Fluid of Syphilitic and Non-Syphilitic Individuals.*
10. *EISENDRATH, D. N. *The Effects of Collargol as Employed in Pnelography.*
11. DUNNING, H. S. *Fractures of the Inferior Maxilla. A Report of One Thousand and Sixty-five Cases Treated.*
12. WILLIAMS, A. W. *A Portable Positive Pressure Apparatus for Administration of Ether by Intratracheal Insufflation.*
13. HENDERSON, M. G. *Resection of the Knee Joint for Tuberculosis.*
14. DICK, A. F., and DICK, G. R. *The Bacteriological Examination of the Urine in a Case of Eclampsia.*
15. MAYORAL, A. *Report of a Case of Acute Dilatation of the Stomach.*
16. BOSMOT, E. *Quinin Salts in Post-operative Cases. Preliminary Report.*

1. Williams in an exhaustive analysis shows that syphilis is far and away the most common etiologic factor concerned in the production of death, presenting an incidence of 26.4%. Toxemia, including eclampsia and nephritis, accounted for only 6.5% of deaths; 17.4% were due to dystocia. The article is of much interest and value.

3. These authors, while not underrating the phenolsulphonephthalein test for renal function, contend clinical data and surgical necessity should be the determining factors in deciding whether an operation is or is not necessary.

7. Novak is an advocate of this form of treatment.

10. Eisendrath shows experimentally the dangers of collargol or any substance injected into the renal pelvis under pressure or in too large amounts. He, however, claims that there is no danger in the human subject, provided ordinary care is taken not to use pressure or large amounts. [E. H. R.]

JANUARY 16, 1915.

1. *CUSHING, H. *Concerning the Results of Operations for Brain Tumor.*

2. *GILLHORN, G. *Three Cases of Extraperitoneal Cescaran Section.*
3. *ROBERTSON, W. E., AND KLANDER, J. V. *Various Types of Lues. A Clinical and Laboratory Study.*
4. BABCOCK, W. W. *Osteoplastic Surgery of the Face.*
5. *BARBER, W. H., AND DRAPER, J. W. *Renal Infection. A Further Experimental Study of Its Relation to Impaired Ureteric Function.*
6. *PIEMISTER, D. B. *Necrotic Bone and the Subsequent Changes Which It Undergoes.*
7. STEINDLER, A. *Coxa Vara Adolescentium Traumatica.*
8. RIDLON, J. *Coxa Vara.*
9. *SMITH, G. G. *Separate Renal Function. Observations as Determined by the Ureter Catheter and Phenolsulphonephthalein.*
10. *MACGOWAN, G. *Hematogenous Kidney Infections.*
11. *CUNNINGHAM, J. H. *Acute Unilateral Hematogenous Infections of the Kidney.*
12. ZAPFLE, F. C. *Autogenous Vaccine in Treatment of Sciatica.*

1, 2, 3, 5. These articles are of interest, but not particularly suited to review.

6. This paper is of considerable practical interest and well illustrated by plate.

9. Smith shows that after the intravenous injection of 6 mg. phenolsulphonephthalein, each kidney of a normal pair begins to excrete the dye in about 3 minutes, and in the next 15 minutes puts out about 5%. If a sound kidney, which has a diseased fellow, excretes 15% it is at least equal to one normal kidney; if more than that it is already taking up the work of both. Such a kidney may put out 30% in this period, or as much as two normal kidneys combined.

10, 11. These two papers are an interesting and valuable review and contribution to this subject.

[E. H. R.]

JOURNAL OF INFECTIOUS DISEASES.

NOVEMBER, 1914.

1. *KENDALL, DAY AND WALKER. *The Metabolism of Saprophytic Human Tubercle Bacilli in Plain, Dextrose, Mannite and Glycerin Broths.*
2. *KENDALL, DAY AND WALKER. *The Metabolism of Certain Rapidly Growing Human Tubercle Bacilli in Broth Free from Lipoids and Fatty Substances.*
3. *KENDALL, DAY AND WALKER. *The Metabolism of Certain Rapidly Growing Human Tubercle Bacilli in a Modified Uschinsky Medium.*
4. *KENDALL, DAY AND WALKER. *The Metabolism of Certain Rapidly Growing Tubercle Bacilli in Media with Inorganic Salts as Sources of Nitrogen.*
5. *KENDALL, DAY AND WALKER. *The Metabolism of "Lepra Bacillus," Grass Bacillus and Smegma Bacillus in Plain, Dextrose, Mannite and Glycerin Broths.*
6. *KENDALL, WALKER AND DAY. *The Occurrence of a Soluble Lipase in Broth Cultures of Tubercle Bacilli and Other Acid-fast Bacteria.*
7. *KENDALL, WALKER AND DAY. *The Relative Activity of the Soluble Lipase and Lipase Liberated During Autolysis of Certain Rapidly Growing Tubercle Bacilli.*
8. *KENDALL, WALKER AND DAY. *Observations on the Specificity and Thermostability of the Lipase Developed During the Growth of a Rapidly Growing Tubercle Bacillus in Media of Varied Composition.*
9. *KENDALL, WALKER AND DAY. *A Comparison of the Curves of Lipolytic Activity and Proteolysis of Certain Rapidly Growing Human Tubercle Bacilli in Media of Varied Composition.*

10. *KENDALL, WALKER AND DAY. *A Comparison of the Curves of Lipolytic Activity and Proteolysis of Certain Acid-fast Bacilli in Nutrient Broths.*
11. DEWEY AND MEZUM. *The Effect of Cholesterol on Phagocytosis.*
12. DAVIS. *The Formation of Chlamydospores in Sporothrix Schenckii.*
13. HIRSCH. *An Experimental Study of the Influence of Iodin and Iodids on the Absorption of Granulation Tissue and Fat-Free Tubercle Bacilli.*
14. ELLIOTT. *The Antigenic Properties of Glycoproteins.*
15. *CORTER. *The Therapeutic Value of Copper and Its Distribution in the Tuberculous Organism.*
16. MEIGS. *The Relation Between the Allergic Intracutaneous Reaction and the Symptoms of Anaphylaxis.*
17. BURMEISTER. *The Protein Poisons of the Tonsil.*
18. HARRIS. *Histologic Differentiation by Means of Anilin Stains in Association with "Regressive Mordanting," with Special Reference to Elastic Tissue.*
19. *HALL AND TABER. *The Effect of Gentian Violet on the Bacillus Tetani, Tetanus Toxin and Certain Laboratory Animals.*
20. *BROWNE. *The Production of Acid by the Bacillus Coli Group.*

1-10. Kendall, Day and Walker print a series of ten papers upon "Studies in Acid-Fast Bacteria," from which the following conclusions have been reached:—

Young, rapidly growing tubercle bacilli are, in part at least, non acid-fast. During the first three weeks of growth of the tubercle bacillus in plain and sugar media there is a rapid accumulation of ammonia, which later gradually, but definitely, recedes.

Early in the growth of the tubercle bacillus the nitrogen of the media is markedly diminished. Later much of the "lost" nitrogen reappears. The reappearance of nitrogen is coincident with the loss of vegetative activity of the organism and is possibly due to autolysis. Similar results were found with other members of the acid-fast group, notably the smegma and the grass bacillus.

All forms of acid-fast bacilli produce in a wide variety of media a free, soluble, thermostable, non-diffusible lipase during the period of active development, the activity of which is proportionate to the luxuriance of growth of the organism. The lipase curve is parallel to that of the ammonia. Washed tubercle bacilli also contain such a soluble lipase, although it is less active than that previously freed from the bacilli. It is impossible to state whether this soluble lipase, found free in the media, is a result of autolysis or is an exolipase.

15. Copper, introduced into the guinea-pig in all forms and in every manner, has no effect upon tubercular lesions. It is suggested that this is due to the fact that all such salts become in the body colloidal copper, which cannot penetrate the tubercle or other necrotic areas.

19. The addition to culture media appropriate for the growth of the tetanus bacillus of gentian violet inhibits growth when in proportion of 1:10,000; prevents growth without the destruction of the organism in 1:100; and destroys its virulence in 1:10. The practical application of this agent in the laboratory is precluded by the excessive soiling of apparatus by such strong solutions as are necessary to secure avirulence.

20. Browne, in a most interesting and complete article upon acid production by the coli group, states that maximum fermentation takes place in 20 hours at 37°C., provided 0.5 c.c. of a 24-hour peptone culture be used as an inoculum, and the carbohydrate be present in 1% solution. The extent of acid production depends, not on the amount of media nor the power of the organism to ferment, but upon the tolerance of the particular strain to the acid itself. This is clearly

demonstrated by further acid production following neutralization of the acid already formed. This may take place until the carbohydrate is completely exhausted. The greatest amount of acid is produced in media containing the monosaccharids, less from the disaccharids, and least from Raffinose, a trisaccharid. [L. H. S.]

JOURNAL OF MEDICAL RESEARCH.

NOVEMBER, 1914.

1. DAYTON. *Reliability of Dogs as Subjects for Experimental Nephritis.*
2. BUERGER. *Recent Studies in the Pathology of Thrombo-Angiitis Obliterans.*
3. DARLING. *The Endotympanum of Hoffman's Sloth.*
4. GURD. *Studies upon Anaphylaxis and Its Relationship to Immunity. Study I. The So-called Incubation Period in Transferred Anaphylaxis.*
5. ISHII AND LOEB. *A Comparative Study of the Growth of Normal Mouse Carcinoma and of Mouse Carcinoma with an Experimentally Decreased Virulence.*
6. OHLER. *Experimental Polyncuritis. Effects of Exclusive Diet of Wheat Flour, in the Form of Ordinary Bread, on Fowls.*
7. MITCHELL AND BLOOMER. *Experimental Study of the Chicken as a Possible Typhoid Carrier.*
8. OWER. *Early Aneurysm of the Aorta.*
9. SMYTH. *A New Medium for the Cultivation of Chick Tissues in Vitro, with Some Additions to the Technic.*
10. *FLOYD. *The Interrrelationship of Dry Pleurisy, Pleurisy with Effusion and Empyema.*
11. DENNY AND FROTHINGHAM. *Experimental Arterial Disease in Rabbits.*
12. *SOUTHARD AND CANAVAN. *On the Nature and Importance of Kidney Lesions in Psychopathic Subjects.*
13. SIMPSON. *The Small Kidney, with Special Reference to the New Formation of Tubules.*
14. *MAJOR. *The Pathological Anatomy of the Pancreas in Diabetes.*

10. Floyd concludes from a series of animal experiments that acute pleuritis, whether dry or associated with serous or purulent exudates, is essentially a pathological unit. The extent of the process and the nature of the fluid depends upon the virulence of the infection, the body resistance and the extent of chemiotaxis which the infecting organism excites.

12. In 100 psychopathic autopsies, Southard and Canavan found gross or macroscopic renal involvement in every instance. In many cases, however, the extent of this process had little clinical significance. Chronic interstitial nephritis was demonstrated grossly in 42%, microscopically in 66%. These figures are striking and are of considerable importance. Detailed study of the occurrence of plasma cells in the kidney substance, and the relation between their presence and certain psychopathic states follows.

14. Major found the islands of Langerhans in diabetes normal in 41% and the seat of fibrosis in 46%. In 46% of the latter hyaline degeneration was found, which was the most striking and constant lesion associated with diabetes, since in only one instance was it found in a non-diabetic case. The inevitable conclusion is drawn that no anatomical evidence exists to prove the diabetes is due to pancreatic disease.

[L. H. S.]

ANNALS OF SURGERY.

OCTOBER, 1914.

1. *OPPEL, W. A. *Principles of Operative Treatment of the Diseases of the Large Intestine*

2. *JONES, S. F., AND WHITMAN, R. C. *Primary Sarcoma of the Lower End of the Femur, Involving the Synovial Membrane.*
3. ALEXANDER, E. G. *Treatment of Old Contracted Cicatrices.*
4. ELSBERG, C. A. *Laminectomy for Spinal Tumor.*
5. BRYAN, R. C. *Aneurysm of the Sciatic Artery.*
6. TOREK, F. *Disappearance of Recurrent Mammary Carcinoma after Removal of the Ovaries.*
7. SPEED, K. *Injuries of the Great Toe Sesamoids.*
8. *MANN, A. T. *The Free Transplantation of Fascia Lata.*
9. *WHITMAN, R. *A Critical Analysis of the Treatment of Fracture of the Neck of the Femur.*
10. HART, H. H. *Flash-light Autochrom Photography of Pathological Subjects.*

1. Oppel's comprehensive contribution is based upon an experience of 41 cases of resection or exclusion of the large intestine. He warns against the formation of a cul-de-sac. If this cannot be avoided he recommends making a mucous fistula at the proximal end of the cul-de-sac. He condemns the unilateral exclusion of the large intestine effected by means of ileocolostomy with division of the distal portion of the ileum. The Giordano—Bergmann operation (caeco-sigmoidostomy) and Montprofit's (division of ileum and double implantation into sigmoid) are carefully considered and condemned. An economical (short loop) partial unilateral exclusion (entero-anastomosis) is favorably regarded for non-malignant obstructions (pericolic contractions, kinks and benign strictures). For such conditions at the flexures colocolostomy (transverse to ascending or to descending) with short loop is considered rational and leaves no culs-de-sac. An exception to preference of partial unilateral exclusion over complete unilateral exclusion is in strictures of the cecum. Here ileo-transversostomy with division of the distal ileum is better than same anastomosis without ileal division. In case of difficulty in bringing the ends of the colon together after resection (resection of ascending and transverse colon), Oppel suggests a high ileocolostomy (not an ileo-sigmoidostomy) with formation of mucous fistula at top of right hand cul-de-sac. Appendicostomy is considered worthy of wider recognition.

2. Jones and Whitman report fully and discuss at length a case of primary sarcoma of the lower end of the femur, involving the synovial membrane. Exploration with removal of section for microscopical examination revealed the nature of the condition. High thigh amputation was performed, but the patient died in three months of metastases in the lungs. Prints of x-rays and photomicrographs are given. The literature has been searched and only 17 cases found.

8. Mann's paper is based upon an experience of 44 cases of fascial and tendon transplants in animals and several in man. He gives in detail the use of two strips of ilio-tibial band to strengthen a large umbilical hernia and of one strip to strengthen a Bassini operation. He pictures the use of fascia to strengthen a Ferguson operation. He emphasizes the importance of laying the transplant *in situ* so that its fibres are "on the stretch."

9. Whitman clearly sets forth his abduction treatment of fractures of the neck of the femur. He points out the greater certainty of contacting the fragments and of maintaining their contact by this method. Age is no contra-indication. In fact, the possibility of raising the head of the bed instead of the necessity of raising the foot of the bed in extensive treatment diminishes the likelihood of hypostatic congestion, and the possibility of turning the patient instead of the enforced rest upon the back in extension treatment diminishes the likelihood of bed sores. [T. W. H.]

Obituary.

DUDLEY P. ALLEN, M.D.

DR. DUDLEY P. ALLEN, an eminent surgeon of Cleveland, Ohio, died in New York City on Wednesday, Jan. 6, 1915. Throughout his active and useful life he was so often and so closely identified with Boston, and he has had so many professional friends and acquaintances here, that his death calls for more than a passing notice in these columns.

Dr. Allen was born in Kinsman, Ohio, March 25, 1852. Both his father, Dr. Dudley Allen, and his grandfather were physicians. After graduating from Oberlin College in Ohio, he came to the Harvard Medical School, where, after following the usual course, he received the degree of M.D. During the year 1879-1880 he was surgical house-officer in the Massachusetts General Hospital, being assistant to Drs. Samuel Cabot, J. Collins Warren, and C. B. Porter; and it was in that school of surgery—where he was also associated with Drs. Henry J. Bigelow, Richard M. Hodges, H. H. A. Beach, John Homans and others—that he developed an intense interest in the practical side of surgery, and began a career which in course of time brought him to the front rank among the surgeons of the country. After finishing his term of service at the hospital he went to Europe, where he passed several years attending lectures and following the work at all the best clinics, especially the surgical ones, in Berlin, Leipzig, Freiburg, Vienna, London and Paris. On returning to America in the early 80's he settled in Cleveland, and began to teach and practise surgery. He soon became lecturer on surgery at the Western Reserve Medical School, and later was appointed professor of surgery and clinical surgery.

Dr. Allen was early given a position on the staff of the Lakeside Hospital, and for many years he was visiting surgeon in that institution, having in charge a very large clinic. His private practice grew rapidly, until, as a surgical consultant, his services were in constant requisition all over the state of Ohio, and even beyond its boundaries. He was greatly interested in the development of the Cleveland Medical Library, and gave to that institution material assistance in many different ways. Finally, he was chosen president of the Ohio State Medical Society. As time went on he came even more and more to the front, for his intelligence, courage, and industry, and his deep interest in all problems connected with medicine and surgery brought him into prominence throughout the country. For years he was secretary of the American Surgical Association, and finally (1906-1907) he was president of that association. In 1906 he was elected Honorary Fellow of the Philadelphia Academy of Surgery, and in 1908 Oberlin College conferred upon him the degree of LL.D.

During all this time Dr. Allen frequently came to Boston; sometimes for the purpose of reading papers on professional subjects, and at other times to study methods of operation and instruction. He always preserved the keenest interest in the medical practices and traditions of Boston. In 1910 he resigned all his medical positions and retiring from active practice, started with his wife (formerly Miss Elizabeth S. Severance of Cleveland) on a tour around the world. On his return to Cleveland after this long journey, a banquet was given in his honor by his medical colleagues, and the large attendance and the cordial and dignified character of the addresses attested the warm affection and the high esteem in which he was held.

Dr. Allen's interests were not limited to professional fields. Both music and art claimed a large share of his attention. His superb collection of engravings, etchings, pictures, and porcelain includes many rare specimens of the choicest variety. He was a recognized expert throughout the country in old Chinese porcelains. Undoubtedly it was because of his great knowledge of art, and of his love for it, that he was made a trustee of the Cleveland Museum of Art. He was also deeply interested in religious and philanthropic work, as well as in many other directions.

He died of pneumonia after a few days' illness.

He had many lovable characteristics, and was a loyal friend. His loss will be keenly felt by those who had the privilege of knowing him well. He was one of those men whose virile intelligence, persistent industry, and deep-seated humanity have done much to elevate the tone of the profession in this country, and to widen the sphere of its influence.

G. H. M.

Miscellany.

CONTAMINATION OF LAKE WATERS.

IN last week's issue of the JOURNAL we published an editorial commenting on the contamination of lake waters and the consequent risk of disseminating typhoid and other enteric diseases by the use of such waters for drinking purposes. In anticipation of action by the United States Public Health Service, the Erie railroad lake lines have issued the following regulations governing the water supply aboard their ships and its protection:—

“The health of the ship's company is fully as important as the safety of the ship and its cargo, and the supervision of the water supply will be

the care of the master exclusively and cannot be delegated by him to any one.

"Isolated sources of supply and methods of distribution have been, or will be, provided, and under no circumstances will the tanks be filled from or through any other. The sea cock will be kept locked and the key be in the possession of the master.

"When water is to be taken, the master will give, or send, the key to the engineer on duty, who will personally see that the sea connection is thoroughly boiled out by means of the steam connection provided for the purpose for at least five minutes before opening the sea cock. The engineer will also personally close and lock the sea cock and return the key to the master.

"Water tanks are to be thoroughly cleaned and scrubbed out with a strong caustic solution at least one in each month and the solution drained and flushed away through the distribution service.

"Except in case of fire, buckets or other vessels are not to be dipped into tanks, and every effort is to be made to keep them free from contamination.

"In taking water, masters will exercise due caution with regard to ships ahead and haul courses, if necessary, to clear their wake.

"Drinking cups or vessels used in common should be thoroughly boiled at frequent intervals or discarded, and the use of water buckets as containers for drinking water should be discouraged, as far as possible. When used in fire holds, they should be boiled out frequently with the steam hose.

"Natural ice is not to be taken aboard under any circumstances unless artificial is unobtainable, and then only when its source is clearly known and satisfactory, and in quantity only sufficient for immediate needs. Ice boxes should be thoroughly scrubbed out after any such supply of doubtful quality."

SCHOOL FOR HEALTH OFFICERS.

HARVARD UNIVERSITY AND MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

A SERIES of afternoon lectures at the Harvard Medical School from 5 to 6 p.m. Undergraduates and instructors of the Harvard Medical School and of the Massachusetts Institute of Technology may obtain free cards of admission to the entire course by applying to the Director, Dr. M. J. Rosenau Harvard Medical School.

1. *School Hygiene*—Dr. T. F. Harrington, Director of Hygiene in the Boston Public Schools. Three lectures, February 10, 17 and 25, supplemented by practical exercises.

2. *Hygiene in the Tropics*—Dr. Richard P. Strong, Professor of Tropical Medicine, Harvard Medical School. Six lectures, April 7, 28 and May 5, 12, 19 and 26.
3. *Sanitary Law—Legal Powers of Health Officers*—Prof. Eugene Wambaugh, Professor of Law, Harvard Law School. Six exercises, April 1, 6, 8, 13, 27 and 29.
4. *Infant Mortality*—Dr. John L. Morse, Associate Professor of Pediatrics, Harvard Medical School. Three lectures, March 29, April 5 and 12.
5. *Ocular Hygiene*—Dr. F. H. Verhoeff, Instructor in Ophthalmic Pathology, Harvard Medical School. Two lectures, March 15 and 16.
Illumination—Dr. Louis Bell, Electrical Engineer. One lecture, March 17.
6. *Oral Prophylaxis*—Dr. W. H. Potter, Professor of Operative Dentistry, Harvard Dental School. Three lectures, May 6, 13 and 20.
7. *Personal Hygiene*—Dr. W. B. Cannon, Professor of Physiology, Harvard Medical School. Six lectures, February 9, Exercise; February 12, Fatigue; February 16, Rest; February 19, Bathing; February 23, Clothing; February 26, Diet.
8. *Medical Inspection of Immigrants*—Dr. M. V. Safford, U. S. Public Health Service, Medical Inspector of Immigrants, Boston. Two lectures, March 19 and 26, supplemented by practical exercise.
9. *Veneral Prophylaxis*—Dr. E. H. Nichols, Associate Professor of Surgery, Harvard Medical School. One lecture, Friday, April 30.
10. *Municipal Sanitation*—Dr. C. V. Chapin, Supt., Board of Health, Providence, R. I. Three lectures, April 26, May 3 and 10.
11. *Relation of Animal Diseases to Public Health*—Dr. Theobald Smith, Professor of Comparative Pathology, Harvard Medical School. Six lectures, March 1, 3, 5, 8, 10 and 12.
12. *Mental Hygiene*—Dr. E. E. Southard, Professor of Neuropathology, Harvard Medical School. Six exercises, February 18, 25, March 4, 11, 18 and 25. Given at the Psychopathic Hospital.
13. *Diet and Pellagra*—Dr. Joseph Goldberger, Surgeon U. S. Public Health Service, Washington. One lecture, April 2. (Cutter Lecture in Preventive Medicine—open free to press and public.)
14. *The Phenomena of Infection*—Dr. Victor C. Vaughan, Professor of Hygiene and Physiological Chemistry and Dean of the School of Medicine and Surgery, University of Michigan. Three lectures, April 14, 15 and 16. (Cutter Lectures in Preventive Medicine—open free to press and public.)
15. *Tuberculosis*—Dr. John B. Hawes, 2d, Secretary Board of Trustees, Massachusetts Hospital for Consumptives. Six lectures, February 1, 4, 5, 8, 11 and 15, supplemented by four practical exercises.
16. *Posture and Prevention of Deformities*—Dr. R. W. Lovett, Assistant Professor of Orthopedic Surgery, Harvard Medical School. Three lectures, March 22, 23 and 24.
17. *Social Service*—Dr. Richard Cabot, Assistant Professor of Clinical Medicine, Harvard Medical School. One lecture, March 9, supplemented by practical exercises under the supervision of Miss Ida Cannon at the Social Service Department of the Massachusetts General Hospital.

Correspondence.

EARLY PICTURES OF ACROMEGALY.

BOSTON, January 11, 1915.

Mr. Editor: In the *Lancet* for December 19, in an article entitled "A Case of Acromegaly 200 Years Ago," Dr. Leonard Mark calls attention to the paintings of Richard Dickinson, who lived at Scarborough, England, 1670-1738. There are seven original paintings by different artists, one by Virtue in 1725, showing a typical acromegalic facies. Mark speaks of this being one of the earliest representations of a rare disease, only recognized of late years, and states that, to his knowledge, it is the earliest picture of an acromegalic to be found in England. He speaks of two other representations to be found on the continent at an earlier date; one, the portrait of a giant at the court of the Elector of the Palatinate, Frederick II, which was painted in 1553; another is the carved figure of a woman, about the 13th century, which is or was on a flying buttress of Rheims Cathedral. There is little hope of its being still extant. In connection with this subject, an exhibition of miniatures at the Boston Public Library from the Grimani Breviary is of interest. This breviary contained nearly 2000 pages and was the masterpiece of the Flemish miniature paintings. It dates from the 15th century. Some of the paintings are thought to be by Hans Memling. No. 1571 is the picture that interests us in this connection. It is of St. Catherine disputing with the doctors (3d century). Without doubt, contemporary Flemish faces (15th century) were the models. This picture is by an unknown artist. In the group around St. Catherine are two figures which stand out unquestionably as typical acromegalics, the immense prognathous jaw, and large face in one figure being particularly interesting. One of the lower figures had also typical facial characteristics. In the other fifteen pictures, some of sacred subjects, some of profane, there is no hint of an acromegalic face, though the broad features of the Flemish type are faithfully portrayed.

Very truly yours,

WM. PEARCE COUES, M.D.

BELGIAN PHYSICIANS' RELIEF FUND.

In his stirring appeal for aid for the Belgian physicians, Professor Charles Jacobs of Brussels states that 2000 doctors are poverty-stricken, and that 2000 to 3000 doctors are suffering cruelly through this war.

That 2000 physicians need to be supplied the necessities of life would seem a low estimate. It seems probable that the physicians' families will average four members. That means 8000 members of physicians' families are dependent upon outside contributions. \$440 will supply sufficient food to sustain life for one month. Belgian physicians and their families therefore, absolutely need at least \$8800 worth of food every month.

For the first month, contributions of American physicians aggregated \$1414. Will the medical profession of America accept its opportunity and meet its share of this responsibility by prompt and repeated contributions?

Every cent of every dollar contributed will be available for the purchase of supplies as the carrying charges are provided for by the American Commission for Relief in Belgium.

The first one thousand dollars contributed have been expended by the Executive Committee for food and supplies, and the packages properly labeled have been started for their destination.

By order of the Executive Committee.

HOWARD C. TAYLOR, M.D., *Secretary*.F. F. SIMPSON, M.D., *Treasurer*.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION.

FULL LIST OF NAMES OF ALL CONTRIBUTORS UP TO AND INCLUDING JANUARY 16, 1915.

CONTRIBUTIONS:

Union Trust Company, Pittsburg, Pa.

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Sterrett & Acheson, Attys., Pittsburg, Pa.

Professional Service

Dr. Frank Overton, Patchogue, N. Y.	\$25.00
Dr. Franklin H. Martin, Chicago, Ill.	100.00
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W. A. M., Ossining, N. Y.	2.00
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Jasper Co. Medical Society, Joplin, Mo.	10.00
Dr. Sidney A. Chalfant, Pittsburg, Pa.	10.20
Dr. Frederick Abbe, Boston, Mass.	10.00
Dr. J. Riddle Goffe, New York, N. Y.	25.00
Dr. Henry F. Graham, Brooklyn, N. Y.	5.00

Total\$1414.00

Expenditures, 450 boxes of food purchased
from Austin Nichols & Co., @ \$2.20 per box 990.00

Balance \$424.00

HOWARD C. TAYLOR, *Secretary*.

F. F. SIMPSON, *Treasurer*.

By order of the Executive Committee.

THE CUTTER LECTURES.

The Cutter Lectures in Preventive Medicine for the year 1915 will be given at the Harvard Medical School by Dr. Victor C. Vaughan, Professor of Hygiene and Physiological Chemistry and Dean of the School of Medicine and Surgery of the University of Michigan, and Dr. Joseph Goldberger, Surgeon, United States Public Health Service, Washington, D. C.

Dr. Vaughan will lecture on "The Phenomena of Infection" on April 14, 15 and 16.

Dr. Goldberger's subject will be "Diet and Pellagra" and will be given in one lecture on April 2.

These lectures are given annually under the terms of a bequest from John Clarence Cutter, whose will provided that the lectures so given should be styled the Cutter Lectures on Preventive Medicine, and that they should be delivered in Boston, and be free to the medical profession and the press. Others interested are cordially invited.

ROGER PIERCE,
University 5, Cambridge.

APPOINTMENTS.

UNIVERSITY OF OREGON.—Dr. Howard D. Huskins, of Western Reserve University, has been appointed professor of biochemistry in the medical department.

NOTICES.

Physicians visiting the city will be cordially welcomed at the following clinics on the days and hours specified.

BOSTON CITY HOSPITAL.—After January 1, 1915, public operations will be performed in the Surgical Amphitheatre each week, on Thursdays, Fridays and Saturdays, at 10 o'clock.

Thursday: First Surgical Service. Dr. Blake.
Friday. Third Surgical Service. Dr. Nichols, and Fourth Surgical (G-U) Service. Dr. Thorndike.

Saturday: Second Surgical Service. Dr. Lund.
Notice of these operations will be sent to anyone expressing his desire to receive it.

CARNEY HOSPITAL.—Dr. Bottomley and Dr. Mahoney will hold an operative surgical clinic every Wednesday at 9 A.M., and at the same hour on the same day Dr. W. R. MacAusland will hold an orthopedic clinic. All physicians are welcome to attend.

MASSACHUSETTS GENERAL HOSPITAL.—1. A surgical clinic Tuesday, at 12, in the out-patient amphitheatre. 2. Operations in the Bigelow amphitheatre Saturdays from 10 to 1. 3. Operations in the Surgical Building except Sunday, from 9 to 1. 4. Daily surgical ward visits at which visiting physicians will be welcome. 5. Clinic in medicine and pathology Tuesdays at 12, by Drs. R. C. and H. Cabot and O. Richardson. 6. Medical clinic Thursday at 12, by Dr. D. L. Edsall.

PETER BENT BRIGHAM HOSPITAL.—Physicians visiting the city will always be cordially welcomed at the Peter Bent Brigham Hospital.

The medical visit takes place regularly every morning beginning at 10 o'clock.

Operations are usually going on throughout the forenoon in the surgical amphitheatre.

The surgical clinic is held in the clinical amphitheatre on Wednesdays at 12.30 p.m.

The medical clinic is held in the clinical amphitheatre on Mondays at 12.30 p.m.

The clinico-pathological demonstration is held in the clinical amphitheatre on Fridays at 3.30 p.m.

SOCIETY NOTICES.

NEW ENGLAND PEDIATRIC SOCIETY.—The thirty-fifth meeting of the New England Pediatric Society will be held in the Boston Medical Library Friday, January 29, 1915, at 8.15 p.m.

The following papers will be read:

1. "Acidosis in Children," Arthur A. Howard, M.D., Boston.

2. "Parenteral Immunization in Conditions of Prolept Sensitization," J. L. Goodale, M.D., Boston.

3. "Weaning—Its Relation to Anaphylaxis as Shown by Differential Blood Counts," H. C. Berger, M.D., Boston.

Light refreshments will be served after the meeting.

E. M. BUCKINGHAM, M.D., *Pres.*

R. M. SMITH, M.D., *Sec'y.*

NORFOLK SOUTH DISTRICT MEDICAL SOCIETY.—Stated meeting at United States Hotel, Boston, Thursday, February 4, 1915, at 11.30 A.M.

Reader: Edwin A. Locke, M.D., of Boston, for George M. Sheahan, M.D., of Quincy, Mass.

Subject: "Some Considerations in the Medical Treatment of Multiple Arthritis."

F. H. MERRIAM, M.D., *Secretary*,
South Braintree, Mass.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—The Spring meeting will be held in Sprague Hall, Medical Library, Boston, on Wednesday, February 3, 1915, at 2 o'clock.

The following papers will be read and discussed:

1. "Observations on the Mentality of Certain Criminals," Edward B. Lane, M.D., of Boston.

2. "A Case of Death from Double Pneumothorax," George L. West, M.D., Medical Examiner, of Newton.

3. "Accidental Death from a Stray Shot from Unusual Distance," Charles W. Milliken, M.D., Medical Examiner, of Barnstable.

OLIVER H. HOWE, M.D.,
Recording Secretary.

RECENT DEATHS.

DR. SAMUEL AUGUSTUS FISK, who died on Jan. 18 in Boston, was born on Feb. 9, 1856. He received the degree of A.B. from Yale in 1877 and that of M.D. from Harvard in 1880. From 1884 to 1899 he was a professor in the medical school of Denver University. In 1900 he returned to Boston, and in 1905 settled at Brimfield, Mass. He was a member of the Association of American Physicians, the American Climatological Association, and the National Association for Study and Prevention of Tuberculosis. He is survived by his widow.

BOOKS AND PAMPHLETS RECEIVED.

Public Health Laboratory Work, by Henry R. Kenwood, M.B. Paul B. Hoeber, 1914.

The Science and Practice of Dental Surgery. Edited by Norman G. Bennett, M.A. William Wood & Co., 1914.

Gonorrhea and Its Complications in the Male and Female, by David Watson, M.B. Paul B. Hoeber, 1914.

The Boston Medical and Surgical Journal

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Original Articles.

A STUDY OF CHILDREN WITH POSITIVE SKIN TUBERCULIN REACTIONS.*

BY ORVILLE F. ROGERS, JR., M.D., BOSTON.

[From the Children's Medical Department, Massachusetts General Hospital.]

THIS study was made at the suggestion of Dr. Fritz B. Talbot, from the records of the Children's ward of the Massachusetts General Hospital, starting with the establishment of that ward on July 1, 1910, and running up to July 1, 1913. Therefore the results here reported deal with children who have been out of the hospital at least one year and not over four years. The average of those heard from was two years, four months.

Those children are included on whom a Von Pirquet (skin tuberculin) reaction was done in the usual manner, with positive results. There were 69 of these in the three years. A number of positive cases were discovered in doing routine skin tuberculin tests, where there was no reason to suspect tuberculosis. These are included in this report, while obvious tuberculosis, in which the skin test was negative, is excluded.

The knowledge of the present condition of these children was gathered from various sources in August, 1914. Some came into the hospital in response to letters, others wrote, and the outpatient records were also used. In all we gained sufficient evidence about 42 children to warrant including them in the report. In addition to this we have eight who died in the hospital—a total of 50 out of 69 whose fate is known with more or less certainty.

* Read at a meeting of the New England Pediatric Society held December 4, 1914.

The table arranged according to age shows that on the whole the younger the patient, the graver the prognostic import of the positive skin reaction. In the first two years of life 11 out of the 17 of whom we know anything, or 65%, are dead. These figures could easily be made to read 11 out of 15, as the two children under one year recorded as alive, might have been left out on the grounds of too fragmentary a knowledge of their after-careers. Neither of these patients apparently had tuberculosis during his hospital stay, but one of them showed signs in his lungs a few months afterwards—since when he has been heard from only indirectly, but is probably alive.

Of that same group of 17, only four—or 23%—have no evidence of active tuberculosis, and only three are really well—a per cent. of 18.

The corresponding figures for children over two years are: known about, 33; dead, 7—21%; alive with no signs of active tuberculosis—21, or 64%; and alive with no illness whatsoever 10, or 30%—almost three times as favorable an outlook.

The second table shows the 69 cases arranged according to diagnosis. In the lowest row of this table are collected the statistics of 24 of the patients—their diseases being non-tubercular, with two exceptions, and none of them having tuberculosis at present as far as known. The two tubercular patients had solitary tubercle(?) and tuberculosis of the right elbow respectively, but nothing has been heard from either of them since discharge.

The most frequent of the tubercular diseases were tubercular peritonitis and pleurisy. Of the five peritonitis cases heard from three had died, while two others are perfectly well. It is interesting to note that these patients either died

TABLE I.—AGE DISTRIBUTION OF POSITIVE CASES.

Age.	Total Positive Reactions.	Total Known About.	Total Alive.	% Alive.	Alive and Free from Tuberculosis.	% Free from Tuberculosis.	Alive with Active Tuberculosis.	Total Dead.	% Dead.	Died of Non-Tubercular Illness.	Died of Tuberculosis.	Died of Unknown Cause.
Under 1 year.....	8	7	2	29	1	14	1	5	71	1	4	0
1 to 2 years.....	10	10	4	40	3	30	1	6	60	1	4	1
2 to 3 ".....	9	5	4	80	3	60	1	1	20	0	1	0
3 to 4 ".....	9	4	3	75	1	25	2	1	25	0	1	0
4 to 5 ".....	7	5	3	60	3	60	0	2	40	1	1	0
5 to 6 ".....	9	8	6	75	6	75	0	2	25	0	2	0
6 to 7 ".....	4	3	3	100	3	100	0	0	0	0	0	0
7 to 8 ".....	12	0	—	—	—	—	—	—	—	—	—	—
8 to 9 ".....	3	4	4	100	2	50	2	0	0	0	0	0
9 to 10 ".....	3	1	1	100	1	100	0	0	0	0	0	0
Over 10 ".....	3	3	2	67	1	33	1	1	33	1	0	0
Totals.....	69	50	32	64%	24	48%	8	18	36%	4	13	1

of tuberculosis quite promptly or else recovered entirely so far as we know at present. Age apparently did not dictate the outcome, for the two types averaged about the same.

The children who had pleurisy are all in good health if the five who reported are any criterion. The average age of these children is four years.

The cases of miliary tuberculosis and tubercular meningitis perhaps should be classed together but the meningitis cases have been kept separate, as miliary tuberculosis did not appear in the discharge diagnosis. The course of these cases was naturally very unfavorable with the exception of one child who will be alluded to later. The average age of these patients was younger than any other group—two years, two months. It is of interest that two other cases of tubercular meningitis, proven by postmortem, gave negative skin reactions.

The cases of bone tuberculosis of which we have word are not doing well. Both the children with Pott's disease are reported as doing

very poorly, and the little girl with periostitis still has new sinuses forming at intervals.

We have heard from only two of the three patients who had pulmonary tuberculosis, and of these one died of infantile paralysis, and the other still has tuberculosis of the cervical glands—though the lungs appear quiescent.

Glandular tuberculosis was very common, but as it was almost always associated with a more serious disease, which masked it, we can get no clear picture of its effects. One of these patients has since developed pulmonary tuberculosis, and is now in a sanatorium.

The diagnosis of "tuberculosis with otitis media" was made on a little girl of seven months, who gave a strongly positive skin reaction, but in whom the most careful examination failed to locate any focus. She died at Tewksbury one month after discharge from the Massachusetts General Hospital, and the diagnosis sent us from there was marasmus. Therefore she has been

TABLE II.—DISTRIBUTION ACCORDING TO DIAGNOSIS.

Diseases.	Total Positive Reactions.	Total Known About.	Total Number Alive.	% Alive.	Number Free from Tuberculosis.	Number with Active Tuberculosis.	Total Number Dead.	% Dead.	Died of Tuberculosis.	Died of Non-Tubercular Illness.	Died of Unknown Cause.
Miliary tuberculosis.....	6	6	1	17	1	0	5	83	5	0	0
Tubercular meningitis.....	3	3	0	0	0	0	3	100	3	0	0
Phthisis.....	3	2	1	50	0	1	1	50	0	1	0
Tubercular broncho-pneumonia	1	1	0	0	0	0	1	100	1	0	0
Pleurisy.....	8	5	5	100	5	0	0	0	0	0	0
Tubercular peritonitis.....	8	5	2	40	2	0	3	60	3	0	0
Cervical adenitis.....	2	1	1	100	0	1	0	0	0	0	0
Bronchial adenitis.....	1	1	1	100	0	1	0	0	0	0	0
Pott's disease.....	2	2	2	100	0	2	0	0	0	0	0
Tubercular periostitis.....	1	1	1	100	0	1	0	0	0	0	0
Tuberculosis and otitis media.	1	1	0	0	0	0	1	100	0	1	0
Lobar pneumonia.....	8	7	6	86	5	1	1	14	1	0	0
Chronic diarrhea.....	1	1	1	100	0	1	0	0	0	0	0
24 patients with various diseases, no one of whom now has tuberculosis so far as known.....	24	14	11	79	11	0	3	21	0	2	1
Totals.....	69	50	32	64	24	8	18	36	13	4	1

included in the non-tubercular group, thought it is hard to rule out a generalized tuberculosis.

In relation to the question whether children with positive skin tuberculins are predisposed to non-tubercular diseases, it was interesting to find that not one of the 38 patients who had signs of active tuberculosis in the hospital is at present suffering from any non-tubercular affection.

Of the 31 patients who in the hospital showed no signs of tuberculosis save for the positive skin reaction, one has since died of tubercular peritonitis and two more now have signs of activity in the lungs—10%. Many of these have chronic non-tubercular diseases, such as endocarditis, pyelitis, bronchiectasis.

In the group that we know something about there were several interesting cases, about one of which a few words may be said.

He was a boy of four on whom a diagnosis of miliary tuberculosis was made. The history was of anorexia, apathy, and continued fever "for some time." He had enlarged cervical glands, signs of consolidation at both apices, with râles, fluid wave in abdomen, an enlarged liver, palpable spleen, and active reflexes, with a Babinski. In 12,000 white cells he had 54% lymphocytes. No tubercle bacilli in his sputum.

In the course of three weeks the fluid wave disappeared, the other signs remaining the same. He ran a continuous fever, pulse constantly tended upward, and lost weight.

After discharge, according to his mother's story, he remained the same for two to three months and was then sent back to the Cape Verde Islands, where his people came from. There he began at once to gain and now, after three and one-half years, the mother says that he is very well and strong.

While this is only a single case it points to the climatic conditions as being an important factor in this boy's recovery.

In drawing conclusions as to the chances of life for a child who reacts to the Von Pirquet test, we must consider what the mortality is in the average child.

The average age of these children, as it was calculated by adding their ages together and dividing by the number of children, is four years, four months. The average length of time since leaving the hospital was two years, four months. Insurance tables show that of 10,000 children aged four years, four months, 430 would be dead at the end of two and one-third years, a percentage of 4.3.

While the numbers involved in this tabulation are very small the difference between 36% and 4% could hardly be pure chance.

It may be argued that those patients who had an acute form of tuberculosis and died in the Massachusetts General, or were taken home a few days before death, should not be counted in making up our minds as to the probable prognosis of a positive reaction in those who survive. Therefore, eliminating the eight cases which were fatal in the hospital, and one of miliary

tuberculosis which died two or three days after discharge, the figures show that nine out of 41 died, a mortality of 22% instead of 36%, but this is again much higher than the ordinary mortality.

If we still further omit from this number, nine, the four who died of non-tubercular illnesses, and the one of unknown cause, we find that we have four out of 36 who died of tuberculosis at least several months after leaving the hospital—11%—almost three times the mortality of the normal.

SUMMARY.

Before the age of two a positive skin reaction seems to be an indication that the child's life is likely to be short.

The mortality among all children, up to the age of 10, who react to the Von Pirquet test is much higher than that of normal children.

The series is too small, and the time since the tests were made, too short, to permit us to draw any but the most general conclusions.

TWO CASES OF RUPTURE OF INTESTINE.*

BY LINCOLN DAVIS, M.D., BOSTON.

CASE 1. C. C. No. 196642, East Surgical. Seven years old. Schoolboy. Sent to the Accident Room of the Massachusetts General Hospital on July 19, 1914, at 11.05 A. M., by Dr. Alfred Davidson of Chelsea, with diagnosis of "Ruptured Viscus."

The following history was obtained: Previous health always good. Yesterday afternoon at five o'clock patient was running across a field and fell down, striking on a rock. His parents state that they think he fell about six feet. Immediately complained of pain in his stomach and has vomited many times since. Has passed apparently normal looking urine. Patient now has severe abdominal pain.

P. E. Well developed and nourished child, looks very sick. Lungs negative except for dullness at right base. Examined by Dr. W. H. Smith, who says lungs are not responsible for symptoms. Abdomen slightly distended, with marked spasm and tenderness everywhere. Percussion note tympanitic, with obliteration of liver dullness. No shifting dullness made out. On abdominal wall, over left upper rectus, is a contusion and abrasion, 1 inch in diameter. Temperature 100.2 by rectum. Pulse 148. Respiration 36.

Prepared for immediate operation.

Ether anesthesia. Iodine preparation. Five inch muscle-splitting incision carried down to peritoneum. Peritoneum opened with escape of much fluid and fecal material. Fluid baled out with gauze strips and gut explored. A perforation of the small intestine, reaching across the gut nearly to

* Read at a meeting of the New England Pediatric Society held December 4, 1914.

the mesentery was found. This was closed with No. 1 chromic catgut stitches and reinforced with a second layer of the same. The abdominal cavity was then thoroughly washed out with Tait tube and about 25 liters of salt solution. A cigarette wick was placed to the left flank and another to the pelvis. Abdominal wall was closed in layers with chromic catgut, reinforced by through-and-through sutures of silkwormgut. Patient sent to Ward H in poor condition. Stomach washed before patient was out of ether; considerable greenish fluid removed.

July 20th. Patient vomited during night once. Pulse has started to drop, but temperature is up. Patient looks very sick. Getting tap water by rectum and stimulation in form of caffeine and camphor. Vomited once today.

July 22d. Pulse has steadily come down. Patient looks brighter this morning. Getting milk and lime water. Has not vomited since last note.

July 25th. Patient much brighter. Taking fluids in good amounts. Rectal tap water omitted. Wound septic about all stitches. A corset of adhesive plaster with hooks made and applied to keep wound together in case stitches slough out. Considerable foul discharge.

From this time on the patient made an uninterrupted recovery. There was considerable sloughing of the wound which closed by granulation. On September 2d he was discharged in excellent condition, with the wound healed, wearing an abdominal belt. Bowels acting normally.

CASE 2. C. E. A. No 177456. Age eight. Recommended by Dr. J. E. Connelly, of Brookline.

Entered hospital July 27, 1911.

Brought to Accident Room in Brookline Police Ambulance at 12.55 P. M. About one-half hour before entrance was struck by an automobile in front of his home in Brookline.

Examination: Well developed and nourished, little boy, pale, frightened, restless and crying with pain. No evidence of injury to head, chest or upper extremities. There are several slight abrasions on skin of abdomen on left side. Abdomen is held with board-like rigidity, and pressure on it anywhere causes patient to cry out in pain. Tympanitic except in left flank, where there is dullness which does not shift. Liver dullness not obliterated. Over outer side of left thigh is a small lacerated wound.

Patient remained in bed in Accident Room for about one and one-half hours awaiting consent of parents to operation. Was catheterized and small amount of pale urine obtained. Patient seemed to grow steadily paler. He lay quietly in bed and wanted to be left alone. Pulse 140, fair quality. Temperature 98, white cells 39,000. The board-like rigidity of the abdomen, with the rising pulse, high white count and shock, together with the nature of the accident, indicated internal injury with hemorrhage, and immediate operation was advised.

Operation: Septic Room. Ether. Five-inch median suprapubic incision. On opening peritoneum there was a gush of fresh blood, whole cavity was filled with it. Partially swabbed out. Careful inspection of liver and spleen revealed no injury, or source of bleeding. A presenting loop of small intestine was found completely severed, and the mesentery torn. Clamps placed on either side of torn intestine, edges trimmed and brought together in an end-to-end anastomosis with Connell stitch

of Pagenstecher, peritoneal coat united with continuous Lembert stitch. Another loop found where the peritoneum was lacerated completely around the gut, the muscular layer being uninjured. Torn peritoneal edges approximated with continuous Pagenstecher. Inspection of the rest of the intestines, which was very hurried on account of the patient's poor condition, revealed no further injury. Abdominal cavity washed out with hot salt solution. One cigarette wick to pelvis. Wound closed to wick in routine manner in layers. Sent to Ward F in poor condition. Stimulated, shock enema, put in Fowler's position. Given rectal seepage and frequent doses of strychnia.

Patient rallied well. Profuse serous discharge from wick. Unable to retain anything in stomach but water for three days. Bowels moved satisfactorily with enemata. In removing the wick on August 6th under gas a portion of omentum and two coils of intestine were pulled out. Replaced without any ill consequences.

Discharged August 20th in good condition. Wound a small granulating spot. Eating well. Bowels O. K. Walking about ward.

These two cases illustrate the well-known fact that operations for ruptured viscera to be successful must be prompt. In the first case reported, the margin of time elapsed since the accident had very nearly reached the limit of possible successful issue for that particular case. To wait until the diagnosis is certain in these cases is to court disaster. In cases of ruptured intestine, with effusion of septic contents, I feel sure that profuse and thorough irrigation of the peritoneal cavity is a life-saving measure. There has been no time for walling off on the part of nature and hence there need be no fear of spreading the infection; it is an entirely different proposition from a peritonitis from an appendix, in which cases nature has practically always had some opportunity of localizing the process, and irrigation is to be condemned.

I have found that children and adults retain ordinary tap water by rectum as well, if not better, than normal salt solution. Why this should be so, I do not know.

URINARY ACIDITY AND BETA-OXYBUTYRIC ACID DETERMINATIONS IN RECURRENT VOMITING.*

BY WILLARD S. PARKER, M.D., BOSTON.

A. H. 7 years old, had a negative family history. She weighed 6 pounds at birth, was never breast fed but given condensed milk. She gained very slowly the first year. At 4½ months she had an attack of vomiting lasting 3 days. At one year a similar attack. Since then she has had 2 attacks each year until 1911 when she had 6 attacks, with an interval between of 6 to 8 weeks. She had already had several attacks in 1912 when seen in November of that year.

* Read at a meeting of the New England Pediatric Society held December 4, 1914.

She had always been very constipated and has had almost no natural movements since birth, receiving an enema or cathartic almost daily. The stools were always hard and at times contained much mucus. On one occasion she passed a string of mucus 1½ feet long. There has never been any diarrhea nor were the stools ever white or clay colored. The diet had been a very reasonable one, containing little milk or cream but at times considerable butter. The feeding of fat seemed to precipitate some of the attacks. The mother thought the child nervous; she was very active.

A typical attack was as follows:—The child first complained of her throat being sore, though no evidences of inflammation were ever discovered. At this time she was usually slightly yellow. After several hours the sore throat disappeared, vomiting came on and lasted from 3 to 6 days. She was nearly always very constipated just before an attack and the bowels were made to move with great difficulty. The physical examination was as follows:—Flesh firm, color good, weight 42 pounds, about 6 pounds below normal. There was no other abnormality except that the abdomen was slightly distended and the liver enlarged; the liver dullness extended to the upper border of the fifth rib, the edge was felt 5 cm. below the costal margin.

The urine was normal and had a specific gravity of 1010.

The stool showed a moderate excess of fat as soaps.

The Roentgen examination of stomach and intestines was as follows:

The first plate two hours after the bismuth meal showed a dilated stomach reaching to the top of the sacrum. The second plate 6¾ hours after the bismuth meal showed the bismuth in the ileum, jejunum, and cecum. Normally, all the bismuth should have reached the cecum by this time. The third plate, 30 hours after the meal showed, in spite of an enema having been given, a large mass of bismuth in the cecum, some in the transverse and descending colons and in the sigmoid. Normally, there should be no bismuth in the cecum at this time.

Bismuth Enema. The bismuth travelled to the junction of the ascending and transverse colon where it stopped short. At this point there was considerable dilatation, as there was also at the cecum which was distended with gas. Normally, the bismuth should fill the cecum.

The conclusion from these findings was that there was some degree of obstruction in the region of the cecum. That the attacks of vomiting depended wholly, or in part at least, on this condition seemed probable.

The child was put on a rational diet for observation. About one week later she had a severe attack lasting four days, during which she vomited from eight to fifteen times daily. The bowels were moved with difficulty. The abdomen showed for three days considerable masses of fecal material in the right lower quadrant. As soon as enemas and cathartics succeeded in evacuating these masses the vomiting almost immediately ceased. Sodium bicarbonate was given in doses of five grams in twenty-four hours.

Very little of the sodium bicarbonate given by mouth during the attack was retained so it was given by rectum, 2 drams in eight ounces of water three times in 24 hours. Only a part of this was

retained and as the urine remained acid until near the end of the attack, it apparently was not rapidly absorbed. Water, orange juice and cracked ice were given by mouth. The vomiting ceased on the fifth day of the attack.

The following are the urinary findings:

Day of Attack.	24-hour Amount, cc.	Spec. Gravity.	Reaction to Litmus.	H + 10-7.*	Titratable, N/10 Acid	NH ₃ Grams Nitrogen.	NH ₃ N/10	Acid + Alk.	Alk. Given, Gms.	Aceton and Diacetic.	B-Oxybutyric Acid Per Cent.	Gms.
1	360	1021	Acid	5.7	307.	.640	460	767	5.0	+	1.5	5.4
2	530	1022	Acid	5.1	372.	.794	567	937	8.5	+	1.7	9.0
3	620	1024	Acid	5.3	52.	.757	541	593	4.5	+	1.7	10.5
4	480	1026	Acid	7.2	0.	1.14	814	914	1.5	+	0.9	6.7
5	820	1018	Acid	7.4		.233	188	188	0.0	+	1.0	7.2
6	510	1016	Acid	8.3	Alk.							5.0
7	950	1014	Alk.	8.3	28.				0.0	0	0.0	0.0

Hydrogen-ion concentration by the Palmer-Henderson Method.
Ammonia by the Folin Method.
Beta-Oxybutyric acid by polariscope.

The presence of the acetone bodies in large amounts, the high acidity of the urine and increased ammonia excretion are all evidence of a true acidosis. The increased ammonia is the reaction usually observed in acidosis and represents the normal reaction of the body to carry off the acids by combination with alkali; the specific gravities in this case are not so high as those frequently observed in the severe cases. The B-oxybutyric acid output is somewhat greater than the amounts found by other observers but there are very few observations on record. Vergeley found 6.8 gms. and 8.5 gms. to the litre. This acid has been found by animal experimentation to be the most toxic of the acid

bodies and there is no doubt clinically that the severest cases are those in which are found the less oxidized bodies, that is, diacetic and B-oxybutyric acids.

A review of the recent literature shows the etiology of the so-called primary acidoses still undiscovered. It is of interest that Sedgewick has found the creatin and creatinin of the urine increased before and during the attacks and that Underhill and Steele found in one case a large amount of lactic acid. Mellamby found an increase in creatinin, and also produced acetonuria in a child subject to recurrent vomiting by sudden withdrawal of carbohydrate from the diet and caused its disappearance by feeding glucose.

Clinically Coomby has noted the frequent connection of recurrent vomiting and chronic appendicitis, while Kerley has called attention to the frequency with which adenoids are found in these cases and the relief often obtained from operation. He has also noted that recurrent bronchitis is a condition which often occurs in children subject to recurrent vomiting and that the attacks may be simultaneous.

In the case here reported laparotomy was done. No adhesions were found. There was a general visceroptosis, dilated stomach and cecum. The cecum was so dilated that it was thought best to infold it. The appendix was removed. The child had no more attacks for ten months. The attacks then recurred but not with their former frequency and severity and there have been in the last year only a few very mild attacks. The vomiting would seem then to have been due in large part to the intestinal condition, so we have in this case though a secondary acidosis, a very severe one, and the suggestion is that more of the cases of recurrent vomiting be subjected to roentgen examination of the gastro-intestinal tract.

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THE SIGNIFICANCE OF X-RAY EXAMINATION FOLLOWING OPERATION FOR CONGENITAL PYLORIC TUMOR.*

By CHARLES L. SCUDDER, M.D., BOSTON.

Surgeon to the Massachusetts General Hospital; Associate in Surgery, Harvard Medical School, Boston.

Cases of congenital stenosis of the pylorus may be grouped into four classes:

*Read at a meeting of the New England Pediatric Society, December 4, 1914.

The first class includes all those cases which died previous to the date of the recognition of the condition by medical men. All those cases were treated medically and were experimentally fed. They all died.

The second class includes those cases which have been unrecognized dating since the time this disease has been understood and carefully studied. All these cases have been medically treated and have died.

The third class includes those cases which are recognized by the attending physician as cases of congenital stenosis of the pylorus, are referred to the surgeon for treatment, are operated upon and die. These cases usually die of starvation because of delay in instituting adequate treatment.

The fourth class includes all those cases which are recognized by the physician, are referred to the surgeon for operation, are operated upon and recover.

The chief difficulty which physicians and surgeons have in dealing with these cases of congenital stenosis of the pylorus is in making a positive diagnosis. One thing which makes the diagnosis difficult is the assumption on the part of the physician that pyloric spasm plays any part in tumor stenosis. I believe that pyloric spasm has nothing whatever to do with the condition of congenital stenosis of the pylorus. All variations in the degree of stenosis and the behavior of cases subsequently proved to be tumor cases may be explained without the assumption of pyloric spasm.

In these cases of congenital pyloric stenosis obstruction at the outlet of the stomach is the important fact. That obstruction in general at the pylorus may be either mechanical or physiological is generally recognized. But so far as any individual baby is concerned having a pyloric tumor, the obstruction is due to the tumor itself encroaching upon the lumen of the pylorus, and is not dependent in any way upon a spasm of the pyloric muscle. Variations in the degree of stenosis may be explained purely upon mechanical grounds: namely, upon the swelling of the mucosa, upon the encroachment of the tumor upon the lumen of the canal, and of the reduplication of the longitudinal folds of mucous membrane normally within the canal, all of which conditions can be proved to be present, and none of which conditions has to be assumed.

Anatomical variations of this sort are competent to account for that which heretofore has been explained only upon the assumption that tumor obstruction is associated with a pyloric spasm. If we can eliminate the idea of pyloric spasm from this group of tumor cases we shall go a long way toward reaching a quick diagnosis with shorter periods of experimental feeding and consequently such tumor cases will receive proper surgical treatment at an earlier date and the lives of more babies be saved.

Dr. H. M. Richter (personal communication) of Chicago has had 11 cases of congenital stenosis of the pylorus examined by means of the x-ray bismuth meal by Dr. Case of Battle Creek, Michigan. Ten of these 11 cases were tumor cases. In each case there was demonstrated a complete closure of the pylorus and in each case bismuth passed through the stoma and not through the pylorus. These x-ray examinations were made from 7 days to 3½ years following the operation of gastro-enterostomy.

In one case of Richter there was no tumor but a spasm of the pylorus. A posterior gastro-enterostomy was done and after three years had elapsed the x-ray examination showed the bismuth passing both ways, that is, through the pylorus and through the stoma. This is a very significant case compared with the true tumor cases.

Dr. W. A. Downs of New York has had examinations made by the x-ray bismuth meal of 6 cases of congenital stenosis of the pylorus subsequent to operation. Invariably in these 6 cases the bismuth passed through the stoma and none went through the pylorus. The period of time which had elapsed from the operation to the x-ray examination was from four months to two years in these six cases.

Dr. James L. Mitchell of Washington, D. C., reports one case in which a bismuth examination 2½ years after posterior gastro-enterostomy was done for a pyloric tumor. This report showed that no bismuth passed through the pylorus, but that all went through the stoma.

Four years ago in a paper published in *Surgery, Gynecology and Obstetrics** I recorded the interpretation of x-rays taken by Dr. Walter J. Dodd following a bismuth meal in nine of my own cases of congenital stenosis of the pylorus that had had the operation of posterior gastro-enterostomy. These were among the first x-rays to be taken of such cases. In every instance the bismuth meal was seen to pass through the stoma and nothing was seen to pass through the pylorus. These x-ray examinations were made from one to eight years following operation. I am now having a larger series x-rayed.

Here then are well-authenticated reports of an x-ray bismuth examination in 26 cases of proved congenital stenosis of the pylorus following posterior gastro-enterostomy. All of these cases were observed by skilled physicians, surgeons and roentgenologists. The returns from these 26 cases are uniform. In each case the pylorus was obstructed, in each case the stoma was patent and was the only exit for the bismuth meal from the stomach. From this evidence it is fair to conclude that the tumor seen at operation continues to obstruct the pylorus.

In this connection it is important to recall the classical case of Morse-F. T. Murphy-Wolbach, of a child who had a congenital pyloric tumor obstructing the pylorus, in which a posterior gastro-enterostomy was done. The child died

seven months subsequently from a cause unconnected with the stomach. At the autopsy the tumor seen at operation was found unchanged.

To this original observation may be added the case of Grulee and Lewis of Chicago. (Personal communication. To be reported by Dr. Lewis in detail in the *Jour. of the A. M. A.*) The child was operated upon shortly after birth because of a pyloric tumor. Nine months later the baby died of pneumonia. At the autopsy the tumor was found to be present blocking the lumen of the pylorus. To this report may also be added the record of Case 14 in Dr. Downs series. This child, Case 14, died of diphtheria three and one-half months after posterior gastro-enterostomy for a tumor of the pylorus. The tumor in this case was of the same size as at operation and was still obstructing the pylorus.

There are, therefore, three authentic cases in which the pylorus tumor discovered at operation has been seen from three to nine months following a plastic operation. These facts taken with the postoperative x-ray findings in the 26 cases recorded above afford a reasonable basis for the conclusion that the pyloric tumor persists and does not tend to disappear. The recognition of the persistence of the tumor in congenital pyloric stenosis is important.

a. The tumor alone with the mucous membrane changes is an adequate cause of the obstruction in all its phases, and it is unnecessary to imagine a pyloric spasm associated with the obstructing tumor.

b. The surgical treatment of these cases is without any question the only permanently effective treatment.

c. The postponement of the operation with the idea, now so prevalent, that the hypothetical spasm will let up and the tumor disappear and the child recover is unjustifiable.

d. A baby having tumor obstruction will always have tumor obstruction.

e. The omission of the hypothetical pyloric spasm from any consideration in these cases will result in earlier adequate surgical relief.

SOME STUDIES IN FAT INDIGESTION.*

BY CHARLES HUNTER DUNN, M.D., BOSTON.

Abstract: The cases studied at the Infants' Hospital were those which showed a marked intolerance of cows' milk fat, manifesting itself by showing signs either of failure of fat absorption, or of failure of digestion, or of both. These cases showed a variety of clinical features, the chief sign of intolerance being the appearance of excessive fat in the stools. The typical feature of fat indigestion is summarized in these words: Inability to gain weight without fat, and inability to gain with it.

* Read at a meeting of the New England Pediatric Society held December 4, 1914.

The points studied, and the conclusions reached, were the following:—

1. Are there any striking predisposing causes for fat indigestion? Chronic disease, particularly tuberculosis, was found associated with these cases with marked frequency. In the study of previous feeding, overfeeding with carbohydrate was found to be the history, rather than overfeeding with fat. The effect of long continued overfeeding and its consequent fermentation may be the primary injury, causing a failure in the power of digesting fat, which later comes to dominate the picture.

2. Can we successfully compensate for deficient power to digest and absorb fat, by increasing carbohydrate or protein, and if so, to what extent? The answer to this question is, to a very slight extent. The three elements, fat, sugar, and protein, must bear a fairly constant proportion one to another.

3. Is the micro-chemical examination of the stools for fat a reliable guide to the feeding of these cases, and if so, to what extent? The conclusion was that it is indispensable for the proper management of these cases. Nevertheless, the continued presence of excessive fat or soap in the stools is not incompatible with prolonged gain in the weight and freedom from clinical symptoms of indigestion. There is always some danger, where excessive fat is present, of a sudden "blow up," with clinical symptoms and rapid loss of weight. Free fat is always a danger sign.

4. What are the relative values of maltose and lactose as the carbohydrate element in these cases? In general, babies who cannot gain weight on a certain percentage of fat with lactose, can gain better on the same percentage of fat when maltose is substituted. As to whether the use of maltose actually increases the power of digesting and absorbing fat, the evidence is contradictory, and not conclusive.

5. What are the relative values of precipitated casein, and unmodified protein in these cases? This point is interesting in connection with the theories of the possible rôle of the cow's salts in fat indigestion. The evidence was contradictory and not conclusive. Fat "blow ups" occurred with the same quantity of fat, in cases where both forms of protein were successively used. Some cases did better with precipitated casein, but in no case did its use show clear evidence of increasing the power of digesting and absorbing fat. The gain appeared to come from the fact that in some cases precipitated casein is better digested than unmodified protein.

6. What is the value of lactic acid milk in these cases? The evidence on this point was not sufficient to permit the drawing of any conclusions.

The following is a summary of the ideas now held at the Infants' Hospital as to the treatment of these severe cases of fat indigestion.

The milk modifications used must be low in

fat, average in carbohydrate, comparatively high in protein. The extra sugar should be maltose. A certain number of the milder cases will do well on this treatment. Severe resistant cases are those which cannot gain on a low quantity of fat, and cannot tolerate an increase. A large number of cases are so severe and resistant that they can only be saved by human milk. Breast milk will save most of these cases, even the severe ones, if used in time. It should always be used in resistant cases, whenever it can be obtained. Even a little breast milk is of value and may save a case which would otherwise be fatal. After a period of breast milk feeding, many cases are found no longer severe and resistant to artificial feeding. If breast milk cannot be obtained, the feeding is very difficult and the outcome uncertain. Excessive increase of carbohydrate or protein will not help these severe cases, and may do harm; I do not believe more than 7% carbohydrate, or 3% protein, should be given. Whey mixtures are of no help, except sometimes in very young babies, who vomit curds; they may do harm. Giving the protein in the form of precipitated casein may be tried, and may help in some cases. There is not sufficient evidence of its value to indicate its use as a routine.

The only way we have of managing these resistant cases without breast milk, is to keep the fat low, and we must be prepared for a period of loss of body weight, which may be prolonged. If they begin to gain when the fat is increased, it is no sign of permanent improvement; they may go to pieces at any time. Frequent examination of the stools for free fat and excessive soap must be made. In the presence of free fat, or in the continuous or increasing presence of excessive soap, the fat should be reduced, even if the baby is gaining. If a "blow up" occurs when the fat is increased, the fat in the food should be reduced to zero, and then worked up again, slowly. Frequent "blow ups" diminish the tolerance of fat. The best hope of eventually obtaining an increase in tolerance of fat sufficient to permit a gain in weight, is to avoid overfeeding with fat for a long time, even if much weight is lost.

ACUTE AND CHRONIC EMPYEMA.

AT THE MASSACHUSETTS GENERAL HOSPITAL
DURING A PERIOD OF TEN YEARS FROM JAN-
UARY 1, 1901, to JANUARY 1, 1911.

BY WYMAN WHITTEMORE, M.D., F.A.C.S., BOSTON,

*Surgeon to Out-Patients, Massachusetts General Hos-
pital; Assistant in Surgery, Harvard Medical School.*

I HAVE looked up and traced, as far as possible, the end results of the cases of acute and chronic empyema operated on at the Massachu-

setts General Hospital during the period of ten years from January 1, 1901, to January 1, 1911.

I realize that statistics may not be of any great importance or especially interesting, but they are of a certain value if they bring out facts that have not been realized before, and perhaps make it possible for better surgery to be done.

There has been a high mortality in the acute cases and a good many of them have become chronic. In going over the records of some 269 cases, and seeing many of those who return in answer to letters sent to them, I have tried especially to find out why the mortality was so high and how it might be reduced.

During this period of ten years there were 269 cases of acute empyema operated on. I have traced the end results in 154 of these. The remaining 115 cases I have been unable to trace; letters have been sent to the patients, then to family doctors, and finally to town clerks, but without success. A large number of patients were foreigners and they have probably drifted to other towns.

Out of the 154 cases that have been traced, there were 54 that died following operation, giving a mortality of 20%. One hundred cases left the hospital alive; 68 are well at the present time. By this I mean that there is no discharging sinus, no bad effects from the operation, and they are able to attend to their regular occupation. Twenty have become chronic. These have a persistent sinus and a cavity with a much thickened pleura, as a rule. The remaining 12 have died since leaving the hospital: one died from an accident, one from diphtheria, three from kidney disease, one from tuberculosis, one from scarlet fever, one from meningitis, one from heart disease; in three cases the cause of death is not known. There has been, apparently, no connection between the cause of death and their empyema.

An autopsy was performed on 30 of the cases that died following operation: 14 died from septicemia, five from pneumonia, three from pyemia, one from peritonitis, two from multiple abscesses of the lung, one from defective closure of the foramen ovale and thrombosis of the left pulmonary artery, in four no definite cause was found. The commonest cause of death was septicemia; the majority being streptococcus septicemia and a few pneumococcus septicemia. I cannot report on any definite cause in the other 24 as there were no autopsies performed on these.

There were 35 cases of chronic empyema operated on during this period of ten years. I have traced the end results in 23: 15 are entirely well; four did not improve by operation, that is to say they have a persistent sinus and are practically chronic invalids; two cases died following operation; two cases have died since leaving the hospital, cause of death not known. Of the two cases that died in the hospital, one had an autopsy performed, the cause of death being

adenocarcinoma of the main bronchus and extensive bronchiectasis.

END RESULTS OF OPERATIONS FOR CHRONIC EMPYEMA.

	Number of Cases.	Well.	Not Well.	Died Following Operation.	Mortality.	Died at Home.	Not Traced.
Decortication of lung	5	3	1	1	20%		
Excision of ribs							
Pleura curetted	21	7	2	1	5%	2	9
Excision of ribs							
Parietal pleura excised	4	2					2
Sinus explored, curetted, etc	3	3					
Excision of ribs							
New cavity drained	1		1				
Excision of ribs							
Old drainage tube removed	1						1
	35	16	4	2		2	12

Many of the cases were desperately sick when they reached the surgeon, having had a severe pneumonia.

I feel that the cause of many of the bad results was that the diagnosis was not made early enough and that the operation was not done soon enough. The earlier the diagnosis and the earlier the operation the better. I believe that one should operate when aspiration shows the serum to have a good many leucocytes in it rather than wait until it becomes pus.

A good many cases are not drained at the bottom of the cavity so that there is a certain collection of pus that does not drain easily. If in exploring a cavity through the first incision one is not at the bottom, I believe a second incision should be made, provided the patient's condition allows it.

Clinical Department.

REPORT OF A CASE OF CONGENITAL MULTIPLE CYSTIC DISEASE OF THE KIDNEYS IN WHICH ONE KIDNEY WAS REMOVED.

BY FRANCIS S. WATSON, M.D., BOSTON.

THE case of the patient which is here reported is thought worthy to be published because of the fact that the conditions existing in the kidney which determined its removal were somewhat exceptional, though by no means unknown, and because the patient having multiple cystic disease of the second kidney nevertheless has lived for six and a half years since the operation and has been well enough to work during the larger part of that time.

The patient, a young man twenty-five years of age, was admitted to the surgical service of the Boston

City Hospital in March, 1908, having been attacked four days previously while being in good health so far as he was aware, with severe pain in the left loin and left upper quadrant of the abdomen.

He had vomited once or twice at the onset of the pain but not since. When admitted his temperature was 100.5°, pulse 90, full and regular, tongue coated. He was feeling weak and somewhat exhausted, was pale of complexion, and looked a sick man. Physical examination was negative except with regard to the right side of the abdomen. On this side the abdominal muscles were tense, and there was a decided sense of resistance to palpation. A tumor of large size could be felt occupying the right renal region and extending forward and downward to the border of the ilium. It presented the usual characteristics of a renal tumor. Cystoscope and ureteral catheterization showed the bladder to be normal. The urine drawn from the left ureter showed distinct differences from that which was obtained from the right one. Urine from left kidney had a sp. gr. of 1009, was pale in color, contained a good deal of pus and a considerable amount of microscopic blood. Albumen in larger quantities than would correspond merely to the blood present. No abnormal renal elements: casts or renal epithelium, or crystals, etc., were found. Urea diminished. The urine from the right kidney had a sp. gr. of 1018, was of normal color, and showed a faint trace of albumen. Urea normal in quantity, color normal, solid constituents practically normal, no pus, an occasional hyaline cast. The last named, and the trace of albumen were the only abnormal elements present in the urine from that kidney. The right kidney was palpable and found to be larger than normal, however.

There was no tenderness on pressure over the right kidney or tension of the abdominal muscles, as on the left side of the abdomen.

There was no history suggestive of renal calculus, other than the present attack, but radiographs were taken of both kidneys and ureters, which failed to show the presence of calculus.

Diagnosis. Long-standing hydronephrosis with recently supervening infection of the left kidney and its conversion to pyonephrosis.

Operation. March 30, 1908. The left kidney was exposed by the lumbar incision parallel with the outer border of the quadratus lumborum muscle. This incision was extended later by a transverse cut from its upper end in order to permit the removal of the very large kidney which was found to be present.

The kidney was seen to be the seat of polycystic disease. It was about 22 cm. in length and ten cm. in width. A considerable number of the cysts within view were distended with blood, there were two areas of suppuration visible and in two other parts of the organ's surface a process of gangrene was beginning.

It was felt that the patient's life would be sacrificed if the kidney were allowed to remain, and despite the great probability that the second kidney was involved in the same condition of cystic disease, it was decided to remove the one that had been exposed.

The organ was too large to allow of its being taken out entire, and it was necessary to resect a part of it before this could be done. After being removed, another and larger area of gangrene was revealed nearer the upper pole of the organ, and on

cutting the kidney in two a cavity filled with pus and of the size of a turkey's egg was laid open.

Further examination showed that there were two or three of the branches of the renal vein which were plugged by thrombi. The condition of the organ made evident the wisdom of the decision to remove it.

The patient made a rather slow but excellent recovery. Shortly after leaving the hospital the urine from the right or remaining kidney was free from pus and showed only the abnormal elements in the urine that have been mentioned above. The patient has been seen by the writer on four or five occasions since, the last of which was a few days since on Nov. 23, 1914, or six years and nearly eight months after the operation. Despite the fact that the urine now contains pus, is of low specific gravity and has a rather large percentage of albumin, the man's general condition has been progressively better during the past year than at any previous time after the operation. He says, however, that he feels very weak and that during the past four months or so he has had rather frequent recurrent vomiting and loses his appetite and strength entirely during these times; between these attacks he has a good appetite and says he digests his food apparently very well.

The case seemed to the writer to present certain features of interest, chief among them, that while it is always regarded as a grave mistake to remove a polycystic kidney under ordinary conditions, because of the great probability of the actual presence of, or soon to be developed, disease of the same character in its fellow organ of the opposite side, yet there are conditions which may exist in one of the kidneys which so greatly imperil life at a given moment that there is far greater danger in leaving the kidney in which they exist in the body than in taking it out. The chance of prolonging the life of the patient to an important degree under these conditions will be indicated or its contrary be suggested by the evidence of good or poor functional condition of the kidney of the other side at the time when the question of nephrectomy arises. If that kidney is shown to be seriously involved already, it is, of course, obvious that it would be of little or no avail to remove its fellow organ, no matter if its condition was such as to immediately endanger life were it allowed to remain. If, on the other hand, the urinary examinations show that the functional condition of the kidney that is to remain after the operation is still capable, it would be a mistake not to remove its fellow under such conditions as were found in the case here reported.

The other point that is of interest is that a patient in whom the second kidney, that is to say, the one that is not to be operated upon, is functionally good at the time the operation is contemplated, the patient may very probably secure a fairly long term of life, after the nephrectomy and will have his life saved from the danger that is at the time imminent. Moreover, there are a few exceptional cases in which the disease is and remains unilateral, and in these

there is no reason why the patient should not after being freed from the danger threatened to life by the conditions in the kidney that is involved in the disease called polycystic, live as long as most people do following the removal of the affected kidney.

When therefore a polycystic kidney is found to present such conditions as those found in this case, namely, areas of gangrene, and collections of pus, whether the cystic condition be very far advanced or not, it should be removed unless the urinary examinations of the product of the opposite kidney indicate that it, too, is too far involved in the cystic process to give a period of life afterward that is not sufficiently important to be considered. Then only would one refrain from doing a nephrectomy on its mate.

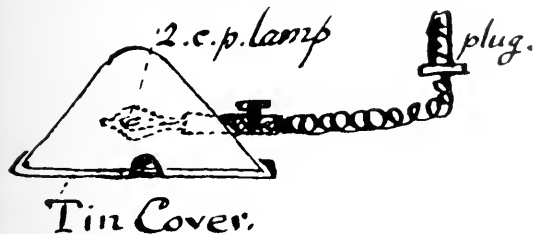
New Instrument

A CHEAP ELECTRIC HEATER.

BY EDWARD VON ADELUNG, M.D., OAKLAND, CAL.

THE following device has been used as a substitute for a rubber hot-water bag for over two years, and has proven more effective, more convenient, and cheaper. So much so that I have decided to put it into print.

The outfit consists of a two-candle power carbon filament lamp in an ordinary metal, scoop-like reflector (as sold in all electric stores), with sufficient cord and a plug to connect with a convenient fixture. The reflector is converted into a metal box by a sheet of tin which is cut the proper size to close the open side of the reflector, leaving small ears to be bent over to hold the tin on. To prevent the metal from coming in contact with the skin, the box is slipped into a flannel or cotton bag with a draw-string. The arrangement is made clear by the sketch.



A sixteen candle-power lamp burning twenty-four hours in this box will not light bed clothes, —nor even paper. So that with a two candle-power lamp there is absolutely no danger of fire. Still such a small lamp yields all the heat that one can stand.

Many of my patients find the device a very great comfort. The ease with which one can use it without getting out of bed renders it especially

convenient, and gives it a great advantage over the rubber bag. It cannot leak. In sickness it is superior to the water bag or bottle because it maintains its temperature, and is not heavy. When placed over cloths rung out of hot water, and the whole covered with flannel, a poultice is obtained superior to the ordinary poultice, and not requiring renewal. Its many applications in health and in sickness suggest themselves.

Any electric house can put the parts together at a cost not over two dollars. The amount of current used is very small, and the cost of maintenance is practically zero.

Medical Progress.

THE BACTERIOLOGY OF THE GASTRO-INTESTINAL CANAL IN INFANCY. A SUMMARY.¹

BY JOHN LOVETT MORSE, M.D., BOSTON.

AND

FRITZ B. TALBOT, M.D., BOSTON.

BACTERIOLOGY OF THE MOUTH.

THE infant's mouth is sterile before birth, but becomes infected from the mother's vagina during birth² or from the air soon after birth.³ The variety of organisms present at this time is relatively small, but as soon as the infant commences to take food the flora becomes more complicated. The number of bacteria does not, however, increase. When the infant takes breast milk, there is an increase in the variety of the organisms, and pathological bacteria may even be found in the mouths of healthy babies.⁴ Because of the fact that even the purest cow's milk contains more bacteria than human milk it is reasonable to expect that the mouths of babies fed on the bottle will contain a greater variety of bacteria than the mouths of those fed at the breast, and that the dirtier the milk the greater will be the variety of the organisms. There are, however, no data as to whether this is true or not.

After the eruption of teeth, *i.e.* after the infant is six months old, the number and variety of the bacteria increase,⁵ and certain micro-organisms, such as the *Leptothrix*⁶ and fusiform bacteria,⁷ which are apparently only able to obtain a foothold in the mouth when teeth are present,⁸ appear.

It is an open question as to how important a part the bacteria of the mouth play in the digestion processes in the stomach. It is conceivable that these bacteria, especially when there is dental caries, may do harm. It has not been proven, however, that they do.

BACTERIOLOGY OF THE STOMACH.

The same influences which modify the bacterial flora of the mouth naturally modify that of the stomach. Under physiological conditions the bacteria in the stomach play an unimportant rôle. A description of the individual kinds may be found in the works of Escherich,⁹ who was a pioneer in this field of investigation. The smallest numbers are found in the stomachs of the breast-fed,¹⁰ and they remain relatively scarce as long as the digestion is normal. When there is indigestion, there is an increase in their numbers. The greatest numbers are found in cholera infantum.¹¹

Bactericidal Powers of the Stomach. There is no doubt that free hydrochloric acid is able to destroy bacteria in the stomach,¹² but this action is prevented to a greater or less extent by the fact that the hydrochloric acid is strongly attracted by the proteins of the food and quickly combines with them, thus becoming inert. Furthermore, since the casein in the milk is rapidly coagulated into curds, the disinfecting action of the hydrochloric acid can only be effective on the surface of the curds, and the large numbers of bacteria which are present in the interior of the curds are not reached by it.¹³ The number of bacteria in the stomach apparently depends also on the activity of the gastric motility, for the quicker the stomach is emptied, the fewer are the bacteria which it contains. The converse is also true.

Lactic acid fermentation does not seem to play as important a part in the stomach of the infant as it does in the adult, in whom it occurs only when hydrochloric acid is absent. Lactic acid is seldom or never found in the stomach of the breast-fed, but is frequently found in small amounts in the stomach of infants fed on cows' milk.¹³

Butyric acid fermentation is more common¹⁴ and has been found to occur in the stomachs of atrophic infants in which the secretion of hydrochloric acid and the motility are both diminished. The pasteurization or boiling of milk destroys the organisms which produce lactic acid, but does not kill the spore-bearing bacilli which produce butyric acid. The latter cause the formation of butyric acid from carbohydrates and fat and possibly from protein. Whether butyric acid is formed or not depends, according to Tobler, not on the kind of food present, but on the type of bacteria. This may be in part true, because fermentation cannot take place without fermentative organisms. On the other, however, the food components necessary for fermentation must be present in sufficient quantity to supply the bacteria with fermentable material. The lactic acid bacilli and the butyric acid bacilli are the only organisms which usually play a part in the various processes of acid production in the stomach. The other bacteria which form acid are usually found only in the lower intestinal canal.

BACTERIOLOGY OF THE UPPER PART OF THE SMALL INTESTINE.

The upper part of the small intestine, in comparison with the rest of the digestive canal, is relatively free from bacteria, both in the breast and in the bottle-fed infant. Hess¹⁵ studied the bacteria of the duodenum during life by an ingeniously devised modification of his duodenal catheter. He found that in new-born infants, who had received no food, the duodenum contained very few organisms, only from one to three growing on a plate. The organisms were staphylococci, gram-positive and gram-negative bacilli. Colon bacilli were not found. Infants in the first week of life also had very few bacteria in the duodenum and these were of the same varieties as those found soon after birth. There was more or less similarity between the bacteria of the stomach and the duodenum. The staphylococcus was the organism most frequently found at this age. Hess could not establish any relation between the amount of hydrochloric acid in the stomach, or of bile in the duodenum, and the number of bacteria. The presence or absence of icterus made no difference in the bacteriology of the duodenum in these babies. Cultures from the duodenal contents of older breast-fed babies showed from one hundred to two hundred colonies per plate. Those from bottle-fed infants showed many more.¹⁶

There is evidence that, while the duodenum may be practically free from bacteria during the intervals between digestion, there is a relatively large population in the small intestine while the food is passing through it.¹⁷ According to Ficker¹⁸ and Moro¹⁹ the flora of the upper small intestine is composed principally of short gram-negative rods (colon bacillus and bacillus lactis aerogenes) with an occasional isolated bacillus bifidus communis, bacillus acidophilus and butyric acid bacillus, and enterococci.

Under pathological conditions there may be an enormous increase in the bacteria in the small intestine. Prolonged fasts are regularly followed by an increase in the number of bacteria,¹⁸ while all processes which cause an inflammation of the mucous membrane of the small intestine result in a diminution of its protective action against bacteria and a consequent increase in their numbers.

Moro²⁰ believes that there can be an endogenous infection of the small intestine. Such an infection is probably present in most disturbances of nutrition, both acute and chronic. The epidemic of severe diarrhea, associated with the presence of inflammatory products in the stools (blood and pus), described by Escherich,²¹ has been used as evidence for this point of view. The infants attacked were all young, their ages varying between four and ten months. The stools contained bacteria which were proved to be, almost without question, "aciduric"²² or acidophilic organisms. These organisms were probably identical with those which are normally

present among the flora of the healthy nursing. Logan,²³ on the other hand, was unable to show that any colon-like organisms from cases with diarrhea showed any greater virulence to guinea-pigs than the same organisms from babies not suffering from diarrhea.

BACTERIOLOGY OF THE LOWER PART OF THE SMALL INTESTINE AND OF THE LARGE INTESTINE.

There are relatively few bacteria in the healthy small intestine down to the lower part of the ileum. There they begin to increase in number, so that when the large intestine is reached they are very numerous. The types of bacteria which are commonly found, according to Kendall, are as follows²²: The more commonly recognized bacteria are the *B. bifidus* of Tissier, the *Mic. ovalis*, the *B. coli*, the *Bact. aerogenes*, and the *B. acidophilus* (Moro). These make up the normal nursing fecal flora. The *Bact. lactis aerogenes* appears in the upper levels of the tract, that is, the duodenum and jejunum; the *Mic. ovalis* in the lower jejunum and in the ileum to the ileo-cecal valve; the *B. coli* and the *B. acidophilus* in the region of the ileo-cecal valve, while the *B. bifidus* appears to dominate the ascending and transverse colon. This cannot be accepted without reservation since intestinal bacteriology is by no means so simple as it would appear from the foregoing statement. The remainder of the tract to the anus is relatively poorly populated in relation to the cecum so far as living bacteria are concerned. This is due in part to the considerable degree of desiccation of the fecal contents of the intestines and in part to the accumulation of waste products, which appear to inhibit the development of bacteria.

The character of the bacteria in the large intestine depends largely upon the food,¹⁹ and, since human milk is a relatively homogeneous food, the tendency of the bacteriological flora of the breast-fed is toward uniformity. The bacteriological conditions in the artificially-fed are, as would be expected, less consistent, because there is no uniformity in the food which they receive. The distinctive features of the stools of the artificially-fed are the relative increase of gram-negative bacilli of the colon-aerogenes type and of coccal forms of the *Mic. ovalis* type. Coincidentally, there is a decrease in the number of organisms of the *B. bifidus* type. The *B. acidophilus* is relatively more numerous and the *B. bifidus* less numerous.

BACTERIOLOGY OF THE STOOLS.

The first stools (meconium) of the new-born are sterile, but they become infected shortly after birth. Within eighteen to twenty-four hours after birth, bacteria make their appearance in the stools and the meconium begins to disappear. The kinds and the number of bacteria which are found depend largely upon the season and the environment of the infant.²⁴ This is a period of mixed infection. The following organisms have

been found in meconium: *B. subtilis*, *B. coli*,²¹ *B. bifidus*, *B. putrificus* Bienstock, butyric acid bacillus,¹⁶ and enterococci.²⁵ These organisms undoubtedly gain entrance to the intestinal canal through both the mouth and the anus. Meconium is a poor culture medium, probably because of its small water content.

The *B. bifidus* appears about the beginning of the third day and persists throughout the nursing period. It is an obligate anaerobe (Kendall), gram-positive, and is the most characteristic organism of the nursing's stool. It is apparently independent of the quality of the stool and is present in the classical golden-yellow, homogeneous, pasty stool as well as in those which deviate from this character in consistence and color.¹⁶ Although the *B. bifidus* dominates the typical field, other gram-positive bacteria can always be found. Other bacteria that have been described in the stools of the nursing are cocci, the *B. lactis aerogenes*, the *B. coli*, the *B. acidophilus*, butyric acid bacilli, the *B. mesentericus* and the *B. aerogenes capsulatus* (Welch).

The bacteriology of the stools of the artificially-fed infant is much more complicated than that of the breast-fed. No characteristic type of bacteria predominates, but there is a mixture of bacterial types. Culturally, the same species are found as in the stools of the breast-fed infant. The general picture is, however, apt to be gram-negative in contradistinction to that of the stool of the breast-fed infant, which is usually gram-positive. The *B. coli communis* and the *B. lactis aerogenes* are the most numerous of these predominating gram-negative bacteria. A peptonizing bacillus, which is almost always absent from the stools of the breast-fed, has been recorded by Rodella.²⁶ Passini²⁷ found three types of butyric acid forming organisms, and isolated peptonizing organisms from the stools of apparently normal bottle-fed babies. The *B. putrificus*, the most typical example of a purely proteolytic organism, has been found in several cases.

The discussion as to the causes which influence the appearance and disappearance of certain bacteria is of more than polemic interest, since it may lead to some conclusions which will have a practical application. Kendall's²⁴ view is given as follows: "The intestinal tract is sterile at birth, because the uterine cavity is sterile. The first infection takes place adventitiously. Any organisms which enter by the mouth or through the anus in the bath water, which can exist at body temperature, will find lodgment in the intestinal tract and may temporarily grow there. Many of the bacteria which thus succeed in entering the alimentary canal are spore-forming. During this period the food which is presented to them is largely detritus of fetal origin. At the beginning of the third day, when the breast milk has had a chance thoroughly to permeate the intestinal tract, new organisms appear, organisms which have a definite relationship to the type of food which is presented to them. It

will be remembered that breast milk contains essentially 7% of lactose, about 3% of fat, and but 1½% of protein. Carbohydrate is, therefore, the dominant food. It is noteworthy that the organisms which appear in response to this diet are those whose metabolism is intimately associated with the utilization of sugar. These organisms thrive but poorly in a medium from which sugar is excluded. When other foods begin to replace the breast milk there is a definite change in the types of bacteria represented in the intestinal contents. The obligate fermentative bacteria, such as the *B. bifidus*, are replaced by more plastic forms and the *B. coli*, which can accommodate their metabolism rapidly to dietary alterations. The *B. coli*, for example, can thrive equally well on a medium in which carbohydrate is absent. It might appear from this rather definite alteration of types of bacteria in the intestinal tract following changes in the character of the food, that the food alone determined the intestinal flora. This may be somewhat influenced by the intestinal secretions. The essential feature, however, is the very direct relationship between food and bacterial response to it. This recognition of a relationship between food and bacteria in the intestinal tract is important in considering the intestinal flora, for it correlates the metabolism of the flora with the effects which it produces rather than attempting to establish indistinct relations between the morphology of the flora and these effects." These conclusions are supported by the work of Sittler,²⁸ and Bahrdt and Beifeld.²⁹

Further investigations are necessary to throw more light on this subject, which is not as simple as it appears. It seems probable that other factors besides the sugar alone may play an important part in determining the intestinal flora, most important of which is the relation of the sugar to the other food components, especially those which favor putrefaction.³⁰

It is interesting to note that Noguchi³¹ in studying the growth and characteristics of the *B. bifidus* was able to transform it in the laboratory from the strictly anaerobic type (*B. bifidus*, Tissier) to the facultative aerobic type (*B. acidophilus*, Moro) and back again to the anaerobic type. Logan²³ believes that the *B. bifidus* of the breast-fed is replaced by the *B. acidophilus* in the bottle-fed.

The Number of Bacteria in the Stools. The most reliable figures as to the bacterial content of infants' stools are those obtained by Strassburger's method.³² He found that the bacterial content of infants' stools was as follows:

TABLE.

AGE.	FOOD.	DIGESTION.	PERCENT. OF DRIED STOOL.
2 months	Cow's milk	Normal	11.5
4½ "	" "	"	42.3
5 "	" "	?	35.2
2 "	Human milk	Normal	25.8
1 "	" "	Dyspeptic	61.4

Leschziner³³ found that 2% to 28.4% of the dried stool of the healthy breast-fed infant was composed of bacteria, while from 6.52% to 29.4% of the total nitrogen was derived from bacteria. The newer and more perfect methods of Kramsztyk³⁴ and Klotz³⁵ show that the number of fecal bacteria varies with the kind of food and that it is the chemical composition of the food rather than its bacterial content which is of significance.

Escherich³⁶ has shown that sterilization of the food has very little or no influence on the number of fecal bacteria.³⁷ Kramsztyk found the smallest number in the stools of infants fed on the breast. He found more in the stools of those fed on diluted cows' milk, and most in the stools of those taking both human and cows' milk. Carbohydrates, especially in the form of malt extract, increase the number of bacteria. Klotz, whose figures are somewhat higher, found that the maximum amount of fecal bacteria in the dried feces is from thirty to thirty-six per cent. He also found the smallest numbers in soap stools. Strassburger, however, found that 60% of the dyspeptic stool was made up of bacteria. Although counting the number of living bacteria is attended with many difficulties, there can be but little doubt that a large proportion of the fecal bacteria are dead.³⁸

Pathogenic Bacteria. The typhoid bacillus and the various types of paratyphoid bacilli may be present in the stools of infants under the same conditions as in adults. The same is true of the tubercle bacillus and the cholera bacillus, as well as of other uncommon micro-organisms, such as the bacillus of anthrax.

The various types of the dysentery bacillus are frequently found in the stools of infants. So also is the gas bacillus, as well as other closely allied micro-organisms. When these organisms are found in considerable numbers in association with the symptoms of disease of the intestinal tract, as in infectious diarrhea, they are, in most instances, the cause of the disease. This is also the case when large numbers of streptococci are found in association with fever and diarrhea. The presence of a few of these organisms in the stools in cases of diarrhea does not prove, however, that they are the cause of the symptoms. They also may sometimes be found in small numbers in the normal stools of apparently healthy infants. Under these circumstances they are to be regarded simply as saprophytes.

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Reports of Societies

CLINICAL CONFERENCE, NEUROLOGICAL INSTITUTE, FIRST DIVISION, NEW YORK.

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DISSEMINATED SCLEROSIS, MID-BRAIN TUMOR, GENERAL PARESIS. DIFFERENTIAL DIAGNOSIS.

DR. JOSEPH COLLINS presented a case illustrative of the great difficulty which one has at times in distinguishing between disseminated sclerosis, mid-brain tumor and general paresis. The patient, a married woman 35 years old, had nothing in her family or personal history worthy of note, save that when she was 20 she suffered from huskiness of the voice for some days. When she was 30 years old huskiness of the voice developed again and she consulted a laryngologist in Norfolk, Va., who, she says, removed a growth from the throat.

The present illness began suddenly in March, 1913, with (1) a sensation of choking. She was unable to speak for five or ten minutes, after which she recovered completely. A week before she had been shocked by the sudden death of a woman who boarded at her house. She was quite well until January, 1914. (2) Suddenly the arms and legs felt numb, stiff, and a sensation of pins and needles in the extremities, and afterward she experienced awkwardness in using the hands. She made no attempt to walk during the attack. This lasted about five minutes. Off and on until October, 1914, she had similar attacks, always with complete recovery in the interim. (3) In July, 1914, while walking on the street the right leg began to jerk so that she

could not walk. The jerking gradually extended to the right arm, to the right side of face, the entire right side. She became unconscious about ten minutes after the jerking started and remained so for about three minutes. She was told that the jerking persisted during this time, and that she frothed at the mouth, and made a gurgling sound in her throat. No injury or incontinence. (4) After the attack she could not talk for about fifteen minutes. Since then her speech has been hesitating and it has been difficult for her to articulate words although there is no difficulty in thinking, reading, or understanding words. Speech has gradually become worse since July. There has been no remission in the symptoms. (5) Since the attack in July there have been transient attacks of diplopia. (6) Up to October 1st she had several twitchings of the right leg and arm, without loss of consciousness. During the convulsion she could not speak. After the attacks, she would have violent occipital headache, nausea, and at times vomiting. No scotomata or dizziness. Since August at times she has a sensation of tightness in the left side of the head and a "funny" noise like the noise of the elevated cars. The sound is in the head and not the ear. These attacks last one to three minutes and are not associated with any other symptom.

In September her relations noticed that she swerved to the left when she walked. She had noticed that she laughed involuntarily when talking at times. Also felt as though nose pulled to the left and downward.

On October 12th, she caught a heavy cold and had severe occipital headache. On October 15th while writing the right eye-lid began to twitch, soon the twitching also involved the whole right side of the face. Then she felt as though choking and was unable to speak for about a half hour. Had severe headache for two days and vomited several times.

On Oct. 19th she again had a severe headache and was unable to talk for about ten minutes.

On Nov. 7th after returning from a walk, the left leg suddenly began to jerk. The attack lasted five minutes. After this she had another severe headache. Later in the day she was unable to talk for about a minute. During the past year she has lost 15 lbs.

Physical Status.—No evidence of trophic disturbances. The station is slightly unsteady but there is no distinct rombergism. Gait is quite normal. There is a moderate, but distinct, lessened innervation of the right facial muscles of the supra-nuclear type. The tongue is protruded slightly to the right. The palate rises normally on volition. Laryngeal examination negative. No muscular weakness of the arms and legs. There is a slight "intention" tremor of the right hand, which varies in degree from time to time. On two occasions, a slight twitching of the muscles of the right lower face was present when showing the teeth. There is no distinct manual or pedal incoordination. The deep reflexes are all quite active. The right knee jerk is slightly more active than the left. Babinski, Oppenheim, Gordon and Hoffman phenomena are absent. There is no ankle or patellar clonus. The right abdominal and epigastric reflexes are normally active; the left absent. No weakness of the extrinsic muscles of the eyes. There is a slight transient nystagmus on looking upward. The pupils are equal, 3.5 mm. in diameter, rather irregular, and react sluggishly to light, but they react. The fundi are normal.

Examination of the hearing apparatus by Dr. E. B. Dench shows a hyperaesthesia of the auditory nerves to the galvanic tests and failure of the normal overpointing reaction on the left labyrinth is stimulated with cold water.

Sense of position, pain, touch, temperature, reaction time and localization is normal throughout. No stereognosis. The speech is syllabic, staccato in type: both in spontaneous speech and repetition of test phrases.

The Wassermann reaction of the serum and cerebrospinal fluid is negative. The latter shows two cells and an excess of globulin. The urine and blood are negative. Mentally, the patient shows nothing abnormal except moderate excitability and emotionalism which is probably constitutional.

In brief then this patient's conspicuous symptoms are:—

1. Dysarthria.
2. Recurrent headache associated with nausea and at times with vomiting.
3. "Attacks" attended with some perturbation of consciousness, topical paresthesia (side of face, foot, leg) and involuntary movement of the extremities of one side of the body, not always the same side.
4. Transient diplopia.

The physical signs are apparently most trifling:—

1. A very slight difference of innervation of the sides of the face, the right side being slightly sluggish.
2. Unelicitable abdominal reflex on the left side, and
3. Pupils that are sluggish in their response to light.

The speech disturbance is "typically," one may say, that of general paresis. She stumbles over words, elides and slurs syllables, and her articulatory efforts are slow. This disorder of speech is variable in intensity. It is always accentuated after a so-called attack, and when she remains for a considerable time free from attacks it is much less noticeable. Another sign of general paresis is the condition of the pupils. They are slightly irregular and sluggish, though responsive to light, a condition which one who examines many patients with syphilitic nervous disease is apt to call "beginning Argyll-Robertson pupils." Yet despite these two signs we must without reserve rule out general paresis because of the absence of any disturbance of the mental content, and the absence of the Wassermann reaction in the blood serum and cerebrospinal fluid.

On first thought the most probable diagnosis is disseminated sclerosis. The speech disturbance, the transient attacks of diplopia, the absence of the abdominal reflex on one side are all suggestive of this disease. Moreover the patient is of the appropriate age for the occurrence of disseminated sclerosis. But in view of the other striking symptoms which she has, namely the headache, nausea and vomiting, the transient regional paresthesias of "an explosive nature," the periodic twitchings or convulsions of the extremities of one side of the body and the two attacks of loss of consciousness followed by what must be described as a queer mental state, the diagnosis of disseminated sclerosis must be abandoned. This leaves us in the position of being obliged to make the diagnosis of mid-brain tumor. As a matter of fact aside from the absence of choked discs or papilledema the clinical

picture which she presents is fairly typical of mid-brain tumor, if any clinical picture can be said to be "typical" of tumor in this location. It need not astonish us that the optic nerves are not involved in this case, granting that a tumor exists. There are many cases on record of mid-brain tumor in which papilledema did not develop until late in the course of the disease. The occurrence of choked disc depends entirely upon when the tumor produces sufficient increase in intracranial pressure to cause an optic neuritis.

The attacks which she has, must, I think, be interpreted as lower level fits, using the term which Hughlings Jackson introduced to describe a form of convulsion caused by irritation of the motor pathway below the level of the corona radiata. As a matter of fact the onset of her symptoms, the course of the disease, or what may be called the behaviour of the symptoms, and the grouping of the symptoms at the present time, are all more in keeping with the diagnosis of mid-brain tumor than with any other diagnosis. In view of the fact that some tumor growths are influenced by arsenic I propose to give her salvarsan and to show her at some future conference.

DR. T. J. KEYSER presented a case of

HERPES OF THE 5TH NERVE OCCURRING IN A WOMAN OF 54, SUFFERING FROM DIABETES.

The patient came to the dispensary on Nov. 9 complaining of severe paroxysms of pain in the right shoulder and right side of neck, face and head.

The present illness began two months ago with severe toothache. Two weeks later she went to a dentist and had the right lower second molar tooth filled. Immediately after this the pain became very severe, extending over the distribution of the lower branch of the trigeminal nerve. The right side of the face became swollen and tender. Gradually the pain extended to the shoulder, neck and head. It occurred in paroxysms lasting two to three minutes. She describes the pain as of an intense burning character. It begins in the shoulder and extends to the face and the head. It is so severe that she screams with pain, and hypodermics of morphia are required to relieve her.

Three weeks ago a herpes suddenly appeared over the right upper chest, shoulder and right side of neck. The burning pain continued as before. On Nov. 8, the offending tooth was pulled. The doctor who was treating the patient before admission found sugar in the urine.

The patient is rather emaciated and very pale. However the mucous membranes are of a good color; there is a moderate general muscular weakness. There is evidence of recent herpes over the right shoulder, the chest to the level of the second rib, the back to the level of the second thoracic vertebrae, the right side of the neck and posterior aspect of the ear. The face showed no involvement. There seems to be some hypersensitiveness to cold and touch over this area. However, the patient is very apprehensive and often complains before she is touched. There is a marked tenderness of the greater occipital, 1st and 2d thoracic, radial and median nerves and the brachial plexus on the right. There is marked pyorrhea alveolaris, but practically no dental caries. Hearing not defective.

There is no tremor or incoördination. The knee jerks are obtained only on reinforcement, the ankle

jerks are absent. The deep reflexes of the arms are present and equal. Babinski and Hoffman phenomena do not exist. There is no disturbance of sensation and postural sense. The patient complains of pain on pressure over all of the muscles and nerves of the lower extremities. This tenderness varies a great deal on different examinations.

There is evidence of consolidation of the base of the left lower lobe, the percussion note is dull, the breath sounds are high-pitched, bronchial with prolonged expiration and bronchophony. A few moist râles are heard at both bases.

The serum Wassermann is negative. The urine shows $\frac{1}{2}\%$ of sugar, a trace of acetone and albumen. Blood pressure, 160. The blood examination is negative except for a leucocytosis of 86%.

The case is of interest in that the onset of pain over the distribution of the lower branch of the right trigeminal nerve following caries of a tooth suggests an ordinary trifacial neuralgia. However, the further extension of the pain over the distribution of the right cervical and first and second thoracic nerves, the development of herpes, and the tenderness of the nerve trunk and calves, recurring in a patient with diabetes, suggests rather the diagnosis of a mild multiple neuritis of diabetic origin.

PERIODIC RECURRING TIC RESEMBLING EPILEPSY.

DR. J. M. STEPHENSON presented from the Second Division of the Hospital a young woman 18 years old, born in this country of Swedish parentage. Father is 46 years old, living and well; mother 58, living and well. Patient is the seventh of nine children, of whom five died in infancy. Her mother first married at 25 years; first child died at one week; second child, born one year later, now 31 years old, apparently normal; third child born two years later, died at three years, convulsions; fourth child, girl, living and well, now 27 years old; fifth child died at three years, convulsions "teething"; the father of these children died of grinders' consumption. The mother married again at the age of 37, her husband being 25 years old at the time. First child of this marriage, a girl, living and well, now 21 years old; seventh child, the patient; eighth child still-born $2\frac{1}{2}$ years later; ninth child died at two years (?), was never well.

Gestation apparently normal; labor relatively normal; low forceps, 10 pounds. Breast fed one year; talked and walked at one year; strong and healthy during infancy. Whooping cough and measles at $1\frac{1}{2}$ years without apparent sequelae; spinal meningitis (?) 1903 (at the time of an extensive epidemic of actual spinal meningitis in this vicinity) starting with bunches in the neck, followed by pain in the head and back; in bed for many weeks and very sick. Since then she has never been as strong and well as previously. Some time later she had influenza with inflammation in one ear, which broke and ran for some time and left her a little deaf. Later she had neuralgia about the heart with sinking spells, which usually consist in the occurrence of black and red bunches on the heels, then on the palms of the hands, and then it would go to her head. She would scream and then faint for two or three minutes and lie so still that they could not hear any breathing or beating of the heart. This occurred about twice a day for two weeks, and she was under the care of a physician, who called the condition nervous

prostration. He made her get up and walk around, and after that she was all right. Three years ago, at the age of $15\frac{1}{2}$ years, she had inflammatory rheumatism with swelling and pain in her legs, hands and neck, and was very sick for one week. One year ago she had bronchitis. Tonsils were removed six years ago, before which time she had tonsillitis frequently. She has noted some shortness of breath in rapid walking. One physician said she had anemia; another physician said she did not have any anemia. In January, 1914, she weighed about 140 pounds, but had lost quite a little weight during the previous few months. Menses began at 12 years, were regular, and did not cause much discomfort. She started to go to school at five and was in the eighth grade at the age of 14, when she had to stop on account of the present illness. Since then she has been at home in a small village with her father and mother, and helps about the house.

Since August, 1910, she has had "spells," occurring at intervals ranging from three or four days to one or two months, with a single long interval of 10 months three years ago. I saw her first in January, 1914, and since then these attacks have occurred on the following dates: Jan. 14 and 30 at 9 a.m.; Feb. 26, 10.30 a.m.; March 18, 4.05 p.m.; April 17, 2.35 p.m.; May 18, 3.45 p.m.; June 16, 12.40 p.m.; July 12, August 17, Sept. 16, Oct. 17. During July and August the menses occurred at intervals of two weeks.

The patient describes her condition as follows: "I have these spells: a funny feeling comes in my stomach and chest, and then it twitches me all over. The left side is the worse. They last more than half an hour. I am awfully weak after it and twitchy for several days. My hands and legs shake. I do not lose consciousness and I know what is going on and can talk. I fall down because I can't walk, because my left ankle goes right under me. I usually bite my tongue."

The sister states that the patient usually introduces the attack by saying, "It is coming, mother," and then falls down if she is not caught. Her fingers twitch and close up; she turns her eyes up and her feet in. The next night she shakes the whole bed, but may sleep for a minute of the time, and then wake up with a jump. Afterwards she is very tired for several days.

Patient entered hospital Nov. 7, 1914. Examination revealed a well nourished young woman; musculature well developed; no atrophies; station good; gait good; no ataxia or tremors at rest or on intention.

Pupils round, regular and respond well to L. and A. Mobility O. K. No contracture of fields nor corneal reduced sensibility. Eye report by Dr. Holden, slight astigmatism.

All reflexes were present, fairly active and equal. Plantar responses flexor. Abdominal and epigastric present and equal. Sensations intact. Wassermann negative. Blood showed 83% hemoglobin. Urine negative. Blood pressure ranged between 110 and 122.

On Nov. 10 had an attack described by Dr. McRoberts, the house physician, as follows: "She lay on the bed with legs drawn up, partly on back and partly on right side. Left arm and leg jerking in irregular violent clonic spasms. Occasionally the left side of mouth would twitch and the right arm and leg shook slightly; mostly from the general mo-

tion the body was thrown into by the left-sided spasms.

"She complained of pain in her neck and hip, and asked that something be done for her. She was perfectly conscious throughout the attack, which persisted violently for nearly forty minutes, and in a measure for several hours later.

"She responded to all questions and opened her mouth for examination of throat. Sensation remained equal in both sides of body according to patient's statements. No corneal or pharyngeal anesthesiae. No loss of stereognostic sense in convulsed hand. Pupils responded to light and the accentuated knee jerks were equal. Left ankle jerk more difficult to obtain on account of resistance of muscles, but when obtained was equal in response to right. Plantar response flexor. No clonus.

"No opinion of abdominal reflex can be given on account of continual spasm. No incontinence. Tongue could be protruded and maintained out for examination easily. No headache, no confusion, no increase in severity after commencement of spasm.

"The spasm involved mostly the pectoral and shoulder muscles. The fingers would open and close irregularly and easily flexible with exception of little finger, which was maintained throughout (almost) in tonic contraction."

Patient continued to have the spasms until about ten that evening, when they are said to have disappeared. However, the next morning they were present, and the first impression made was that of hemichoreiform movements. But upon examination the movements were seen to be not the aimless movements of the chorea, but rather the overaction of volitional impulses. The muscles mostly involved were those of the left shoulder, the movements causing adduction and elevation of the arm. At the same time there was irregular flexion and extension of the fingers, with an occasional contraction of the abdominal muscle and diaphragm. The movements at times were slow, again sudden, causing a quick jerking of the arm inward and upward. Attempts to control the movements aggravated them but distraction of attention somewhat lessened them. The spasms have continued, but are gradually lessening in severity. However, upon close observation, you can observe them now.

The question of diagnosis is an interesting one. Three possible diagnoses present themselves, viz.: Jacksonian epilepsy, including also the so-called basal ganglion explosions; hysteria; and tic. It is hard to conceive that one could have seizures so frequently over a period of many years of a cortical or basal origin without showing some organic manifestation, such as increased reflexes, etc. These being absent, I think we can eliminate an organic etiological factor.

The diagnosis of hysteria is always a dangerous one and in my opinion should never be made unless there is at least one of the stigmata of hysteria, not one of which is present in the patient.

By a process of elimination, I arrive at the diagnosis under which I desire to present this case, viz., periodic recurring tic. Here we have a patient of neuropathic constitution, indicated by her previous history, upon which field such maladies develop. We have a young girl who for the past year has had regular monthly "spells," so regular that the family can almost predicate the date. The spells are always of a similar nature, consisting of irregular contractions, involving mostly the shoulder girdle, movements being more those of overaction of nor-

mal impulses, aggravated by attempts to control, lessened by distraction, showing none of the findings produced by organic disease of the central nervous system, and none of the stigmata of hysteria.

THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING OF WEDNESDAY, NOVEMBER 4, 1914, AT 8 P.M.

The President, DR. JAMES C. WILSON, in the chair.

PAIN AND TENDERNESS IN DISEASES OF THE SPINAL CORD AND THEIR SURGICAL TREATMENT.

DR. CHARLES A. ELSBERG, New York: The tremendous development of abdominal surgery has brought with it a great advance in our diagnostic acumen. Strange to say, however, little attention has been given to the neural origin of abdominal pain. The abdominal symptoms of locomotor ataxia are well known, yet in not a few cases operations have been performed for supposed gastric disease when the real trouble was gastric crises in the course of tabes. During the past five years two patients have been sent into my service in one of the hospitals in New York with the diagnosis of acute appendicitis. In both instances the patients had Pott's disease with irritation of spinal nerve roots, and areas of skin and muscle tenderness in the right iliac region. I have records of three patients in whom various operations had been performed who were finally found to have a spinal tumor or a neuritis of the nerves of the cauda equina. Another patient operated upon for supposed gangrene of the toes with severe pain shooting down the leg was finally relieved by an operation for spina bifida occulta. To understand the distribution of painful symptoms in the extremities it is of value to remember the anatomy of the spinal nerve roots. There is a marked difference between the cervical and upper dorsal, and the lower dorsal and lumbosacral posterior roots. In the latter the nerve fibres which originate from the cord soon unite to form one bundle,—the posterior nerve root; in the former, however, the bundles of fibres which originate from the cord along a line from one to one and one-half centimeters in length do not unite to form the posterior root until near to where they perforate the dura. As a result a tumor may press upon some of the nerve bundles without compressing the entire spinal root. This anatomical arrangement enabled us to understand the early symptoms of a patient from whom I removed an extramedullary tumor of the spinal cord between the seventh and eighth cervical segments, whose first and for a long time only symptom was a painful pin and needle sensation in the index finger of the right hand. At operation the tumor was found to have pressed upon only the lower nerve root bundles of the seventh cervical posterior root. From several cases of this kind I feel justified in making the statement that of the nerve bundles that make up the seventh cervical posterior root, the lower supply the index finger and the upper the thumb,—an interesting fact for finer spinal localization. There are many abdominal disturbances that patients suffer from which are but little understood. In my last 100

laminectomies for spinal disease I have performed six operations on patients who had been treated for long periods for abdominal symptoms. In every case of indefinite abdominal pain and tenderness it is advisable to make certain that we are not dealing with a cutaneous hypersensitiveness, which so often simulates real abdominal tenderness. Before doing a root section for gastric crises I believe there should always be given a preliminary intraspinal injection of stovain. By this means will be gained a fair idea of the prospect of success from division of posterior roots. The operation of Spiller and Martin for severe pain of peripheral or of spinal origin is based upon a sound anatomical and physiological foundation and the future for the operation is a very bright one. The question of whether the spinal cord is sensitive to pain, or like the brain, insensitive, is a subject to which I have been giving some of my time and attention. I have observed patients upon whom lumbar puncture was done, others upon whom spinal operation was done under local anesthesia. Finally, I have attempted to learn something on this subject in the course of some experiments upon animals. Other attractive subjects for study are the pathological mechanics of spinal compression, and a more intensive study and comparison of the sensory and motor disturbances which occur on each side of the body when the spinal cord is pressed upon by a new growth or as a result of an inflammatory or traumatic lesion.

DR. CHARLES W. BURR: In a patient seen some years ago the only symptom present was diffuse pain in the right arm. Later there was slight wasting in the muscles around the thumb. The pain was later replaced by painful anesthesia accompanied by marked wasting and gradually increasing palsy in the whole arm. After some time death ensued and at post mortem there was found in the cervical region a long flat growth that had entered the nerve roots, first the posterior, causing only pain and then the anterior, causing pain and wasting. Had we but known the cause of the trouble, operation would have saved her a great amount of pain and probably her life. The more we learn of the distribution of pain in reference to the nerve roots affected, the more we shall be able to do in all of these cases.

DR. CHARLES H. FRAZIER: My experience in operating for the relief of pain consequent upon spinal lesions has been confined to cases of tumors operable and inoperable of tabetic crises, and of persistent neuralgia following injuries to the brachial plexus. I think it is too commonly supposed that pain is a constant and conspicuous symptom of spinal tumor referred to the peripheral distribution of the segment involved. A number of cases of spinal tumors have been observed in which throughout the course of the lesion there was absolutely no pain. The widely varying results of rhizotomy would seem to throw some doubt upon the present conception of the pathways of afferent impulses and to suggest the possibility of the ventral roots having some part in the carrying of afferent impulses. Such hypothesis has been already advanced by Kidd. Whenever possible, a therapeutic test should be applied before operation in order to determine whether interruption of the sensory impulses does not relieve pain. Spiller's suggestion of resection of the anterolateral column of the cord is a most valuable one and appeals to me particularly in cases of uncontrollable pain of the lower extremities and more especially because the operation does not necessitate

the removal of as many laminae of the spine as would be necessary to cut the required number of lumbar and sacral roots. In the limited number of root resections for pain in my own clinic there have been no fatalities, but in a larger series, performed by a number of surgeons, the mortality rate has been estimated at 10%. This I believe is too high and that the risks of the operation should be materially reduced. The low rate of mortality in my own experience with laminectomy I attribute chiefly to intratracheal anesthesia and to the use of the stovain block.

DR. ELSBERG: I am not very enthusiastic about cutting posterior spinal roots in the treatment of the crises of tabes. Professor Forster states that the only way to get a fairly good result is by an enormous laminectomy, cutting from the fourth or fifth dorsal down to the twelfth, and that even then the result is not certain. I have seen temporary benefit from the injection of stovain into the spinal canal. Laminectomy is an operation in which the mortality should be very small and one which a surgeon after a little experience should be able to do easily. In 98 successive cases we have had no mortality.

THE PATHOLOGY OF TABETIC OCULAR PALSIES.

DR. WILLIAM G. SPILLER: The causal relation of syphilis to tabes and paresis is now fully accepted and gradually the view has gained headway that tabes and paresis are really syphilitic and not parasymphilitic diseases. This opinion has been greatly advanced by the discovery of Noguchi and Moore of the spirocheta pallida in tabes and paresis. The present status of the syphilis tabes paresis question has been fully discussed by Nonne. It has taken many years to establish what is now known in regard to this matter, and it has become evident that some of the sharp distinctions between tabes and paresis, on the one hand, and cerebrospinal syphilis on the other, need modification. This does not mean that we must drop the designations of tabes, paresis and cerebrospinal syphilis. The ocular palsies of tabes have been regarded by some investigators as nuclear in origin and the syphilitic ocular palsies as of nerve origin. This view may be disputed. I have studied by microscopical serial sections a typical case of tabes with complete internal and external ophthalmoplegia. The ocular nerves and their nuclei were much degenerated, there was considerable round cell infiltration of the pia, but one of the abducent nerves which was less degenerated than the other showed also less round cell infiltration within the nerve. Round cell infiltration is indicative of the intensity of the syphilitic process. This case would throw doubt on the view that tabetic ocular palsies are nuclear.

DISCUSSION.

DR. CHARLES K. MILLS: Dr. Spiller's paper is another contribution to our exact knowledge of the well known phenomena of tabes and another contribution to assist us in bringing together so-called parasymphilitis and syphilis, or rather to break down the artificial partition which has been reared for so many years between these so-called different specific diseases. We can understand some of the well known early phenomena of tabes better by recognizing the position which Dr. Spiller takes regarding these ocular palsies. As an example, it is not

at all uncommon for the diplopia often present in early tabes to rather quickly disappear. I take it that this would not occur were the palsies due to nuclear degeneration.

DR. DANIEL J. MCCARTHY: Certainly syphilis of the brain and of the spinal cord reacts entirely different to treatment with mercury or salvarsan from tabes and paresis. The accumulation of statistics from salvarsan and other treatment leaves little doubt that, while there is a certain amount of symptomatic improvement, there is little evidence of clear cut cures in tabes, and none in well-developed paresis. There is a group of diseases of syphilitic origin which reacts fairly well to treatment. I would ask Dr. Spiller whether in his opinion tabes still exists, or whether all cases of tabes should be grouped together as spinal syphilis. My feeling is that we have distinct cerebral syphilis which reacts to treatment. Apart from this, paresis on the one hand and tabes do not react, and when once developed are practically incurable.

DR. SPILLER, closing: We recognize tabes and paresis, but we must regard them as truly syphilitic diseases. Tabes is caused by the degeneration of the posterior roots from the syphilitic poison. There are cases in which a positive diagnosis between spinal syphilis and tabes cannot be made. There are also cases in which the diagnosis between cerebral syphilis and paresis cannot be made, and these cases show how close the connection between cerebrospinal syphilis and the so-called parasymphilitic diseases may be. From my study of the effects of syphilis on the nervous system and from a reading of the literature I have formed the opinion expressed in my paper.

NEW ENGLAND PEDIATRIC SOCIETY.

MEETING OF DECEMBER 4, 1914, HELD AT THE BOSTON MEDICAL LIBRARY.

The President, DR. C. A. PRATT, of Fall River, in the chair.

The following officers were elected for the ensuing year:

President, DR. E. M. BUCKINGHAM, Boston, Mass.

Vice-President, DR. E. F. CURRY, Fall River, Mass.

Secretary and Treasurer, DR. RICHARD M. SMITH, Boston, Mass.

Member of council for three years, DR. FRITZ B. TALBOT, Boston, Mass.

The following papers were read:

CHILDREN WITH POSITIVE SKIN TUBERCULIN REACTION.*

By ORVILLE F. ROGERS, JR., M. D., Boston.

TRAUMATIC RUPTURE OF INTESTINE.†

By LINCOLN DAVIS, M. D., Boston.

A CASE OF ACETONURIA.‡

By WILLARD S. PARKER, M.D., Boston.

* See JOURNAL, page 161.

† See JOURNAL, page 163.

‡ See JOURNAL, page 164.

THE SIGNIFICANCE OF THE X-RAY GASTRO-INTESTINAL FINDINGS IN CASE OF CONGENITAL STENOSIS OF THE PYLORUS, FOLLOWING POSTERIOR GASTROENTEROSTOMY.§

By CHARLES L. SCUDDER, M.D., Boston.

SOME STUDIES IN FAT INDIGESTION.¶

By CHARLES HUNTER DUNN, M.D., Boston.

DISCUSSION.

DR. C. W. TOWNSEND, Dr. Davis's paper: I would like to ask Dr. Davis what percentage of mineral matter there is in ordinary tap water. I supposed that pure water was an irritant to the mucous membrane, and the fact that tap water works as well as salt solution would rather indicate that there was some mineral matter in it.

DR. F. B. TALBOT, Dr. Parker's paper: This type of case is extremely interesting, because we know so little about the real cause of vomiting associated with acetonuria. Curiously enough, a number of cases that I have seen with acetonuria and vomiting have all had acetone in the urine as soon as I was able to get a specimen. That does not mean that the acetone preceded the vomiting in all these cases, but there are many cases such as one I have at present in the ward at the Massachusetts General Hospital which has a large amount of acetone in the urine and who has not yet vomited. Associated with the acetonuria and vomiting there is evidence of an intolerance to fat, and my clinical experience has been that the majority of these cases have done better and have had fewer attacks when the fat has been entirely cut out of the diet.

DR. C. A. PRATT: I have seen two out of six children with this condition die, which is rather a large death-rate, I think.

DR. W. S. PARKER in closing: I had a report very recently on this case which was operated on. General microptosis and a much dilated cecum were found. The cecum was unfolded and the transverse colon suspended. No attacks were recorded for ten months, when they recurred with very moderate severity and nothing like the former frequency; they have diminished from that time on, and the last letter from the parents states that they regard the operation as a complete success as far as cure is concerned. This is rather unusual, as the constipation is still very extreme.

DR. F. B. TALBOT, Dr. Scudder's paper: I agree in general with everything Dr. Scudder has said, but I would like to know how he answers the question which is raised that in the majority of these babies they do not begin to vomit until they are about ten days old. I would like to know how he explains that fact and why, if there is a congenital tumor at birth, we do not have vomiting from birth?

DR. C. G. MIXTER: Last year, I reported before this Society, five cases which we had had in our clinic at the Children's Hospital, which were followed through their ultimate course after operation with x-rays, and which substantiate Dr. Scudder's pictures entirely. Furthermore, we had one case in which, several months after gastroenterostomy, a stomach-tube was passed—it went into the duodenum, then came to a halt, was deflected upward and around, and finally went out through the

§ See JOURNAL, page 166.

¶ See JOURNAL, page 167.

stoma, after making a complete circle, showing that the pylorus was still sufficiently obstructed to resist the pressure of a stomach-tube above it. I have seen other cases also since that time, the time of course being short, but in all the obstruction has remained.

DR. SCUDDER: There is no longer any doubt that the tumor in these cases is congenital. There has been a case reported—one that we all have been on the lookout for—a still-born baby, a fetus, in which the congenital tumor was present. It is the first instance reported, and it establishes the fact that the tumor is congenital.

In answer to Dr. Talbot's direct question, "Why do not these babies vomit from birth?"—the average time of vomiting is from two to three weeks in a large series of cases. Some of them do vomit at the end of the first week. Some spit up a little just after birth. One reason that has been attributed for their beginning to vomit at the end of a week is that the mother's milk begins to be secreted copiously at this time. The ingestion of this larger quantity results in spitting up and vomiting. I believe that the tumor exists at birth and that the lumen of the pylorus is obstructed to a variable extent, the obstruction differing in each case. In some cases it is nearly complete, in others it is much less. Therefore, remembering that each individual needs a certain lumen to his pylorus to get food through without vomiting, it is fair to conclude that if the pylorus is sufficiently patent, there will be no vomiting; if it is not sufficiently patent, then vomiting begins.

Instead of supposing that a pyloric spasm exists in these tumor cases, it seems to me that it is more reasonable to suppose that the edema of the mucous membrane and the swelling of the pyloric ring are competent to occasion a rather sudden narrowing, and the onset, therefore, of vomiting. It is true that all parts of the child grow rapidly during these first few weeks, and this tumor will grow, thus obstructing more and more. The answer to the question why vomiting occurs at different periods is that there is a mechanical and not a physiological cause at work. I think it unnecessary to introduce the physiological functional element seen in the contracting pyloric sphincter. The purely physical explanation is entirely adequate. The edema of the mucous membrane, the increased swelling of the longitudinal fold that normally exists within the pylorus, and the natural growth of the tumor itself, all adequately contribute to the obstruction.

DR. K. G. PERCY, Dr. Dunn's paper: I would like to ask Dr. Dunn if in this series he has seen two types:—one of straight fat indigestion, and the other of fat indigestion plus a carbohydrate indigestion. Are these latter not primarily carbohydrate indigestion? You say, that in your series, these cases with sugar indigestion as a complication have not shown a gain on any special type of milk formula even lactic acid milk. We have been following the cases of diarrhea at the Children's Hospital with the gas bacillus test and Dr. Sylvester has been following the fat indigestion cases with the same test. Many of these cases, having secondary inability to take care of sugar, were positive for gas bacillus and did well on butter-milk, both in regard to weight gaining and later, acquiring their ability to take care of fat. Have you found this same phenomena, which we believe typical of a special type of, so-called, fat indigestion?

DR. H. A. GALE: Was maltose tried in the beginning of treatment of these cases and did it prevent blow-ups?

DR. H. A. GALE, Dr. Dunn's paper: I would like to ask Dr. Dunn a question, and that is whether or not there is any record of the proportion of those cases in which cane sugar seems to do the damage. My impression is that most of the cases of straight fat indigestion have been either on starch mixtures or cane sugar mixtures. I would also like to ask if there was any attempt made to replace the bovine fat by the other fats. That has been done in some places, although no definite results have been reported as yet.

DR. F. B. TALBOT, Dr. Dunn's paper: I notice that Dr. Dunn said that in one of his cases he had found tuberculosis. In infancy the tubercle bacillus usually gains entrance through the glands and in a large number of instances through the mesenteric glands. In a series of cases¹ which I studied two or three years ago I showed that when all the mesenteric glands were tubercular and functionally destroyed, that fat would be digested but not absorbed and as a result fat was found in the stools. Such cases, of course, are not cases of fat indigestion *per se*, they are cases of tuberculosis. Furthermore, it is conceivable that a similar condition can be present in hereditary syphilis, although it has not been proven. Such cases are very difficult to feed and their stools are likely to contain fat; they are sometimes classified as cases of fat indigestion, but they get well if put on proper antisyphilitic treatment. In regard to soap stools, I have found it very difficult to tell whether there is more soap or less soap in a stool. It is very easy to say whether there is soap or not, but when a stool becomes a soap stool, my experience has been that practically all the stool is soap and there is no "more" or "less." To my mind the most important factor in these very difficult cases of infant feeding is the balance of the food, that is the relation of the fat to the carbohydrate, and the protein, and of the sugar to the fat, and so on. In a great many cases in which the stools have been loose and have contained free fat, in other words, fatty acids, I have been able to change the stool into a soap stool very easily, merely by changing the balance of the food, that is, a food with a high percentage of protein and a relatively low percentage of fat and sugar. Last year Dr. Hill and I² reported the metabolism of a baby in which the sugar in the food was increased about 3% at a time. We measured the fat, the nitrogen, and the carbohydrate metabolism, as well as the sugar. When the food got beyond the limits of tolerance for sugar the baby had symptoms of indigestion which were due to the sugar. The stools contained a great deal of fat, which they did not contain before. That was not a case of fat indigestion, but a case of sugar indigestion. The digestion of sugar and the fat is so intimately connected, that it is almost impossible to say what element was the primary cause of the indigestion, the fat or the sugar, without previous knowledge of the course of the disease, and I wonder how Dr. Dunn was able to tell that these cases were all cases of fat indigestion. A word as to my feeling as to the action of protein. I look upon buttermilk, Eiweissmilch and precipitated casein as foods in which the

¹ Tuberculosis of the Mesenteric Glands in Infants and Young Children: Its Effect on Absorption. Am. Jour. Diseases of Children, 1912, iv, 49.

² The Influence of Lactose on the Metabolism of an Infant, Am. Jour. Diseases of Children, 1914, viii, 218.

action comes more from the form of protein than because it is Eisweissmilch, buttermilk or what not. In other words, it is a protein that cannot be coagulated again. My experience has been that boiling the milk gives practically the same results as buttermilk, precipitated casein or albumen milk. I was very much interested in Dr. Dunn's paper, and I hope there will be more papers like it.

DR. C. L. SCUDDER, Dr. Dunn's paper: How many cases were observed during this period in this study?

DR. C. H. DUNN, in closing: Thirty-five cases comprise the statistical table which I am at work on.

In answer to Dr. Percy, I will say that we did see carbohydrate, or signs of carbohydrate indigestion in the course of some of these cases, but whenever it occurred we could relieve it very easily, but the fat indigestion we could not relieve so easily. Also there is a large series of cases that came into the hospital which were diagnosed as carbohydrate indigestion only. They gave the symptoms of acid irritating stools, gas, green movements and vomiting, but they were very easily relieved and soon discharged. In those cases when we gave moderate amounts of carbohydrates we did not see signs of carbohydrate indigestion after they entered the hospital. The only time we saw it was when we attempted to experiment by increasing the amount of carbohydrates.

DR. GALE'S question: A certain number of cases were on maltose preceding a "blow-up," with an increasing amount of fat in their stools; fully as many cases in the series showed fat "blow-ups" on maltose as on lactose. Possibly we had more on maltose. The maltose seemed not so much of use in preventing the "blow-ups," but it allowed us to obtain a gain in weight with a small amount of fat. It nourished the baby better, but did not increase the fat tolerance.

DR. PORTER'S question: I am by no means convinced myself from our evidence that the cow's milk salts do not play an important rôle in these cases. In fact, we entered the investigation rather in the hope of obtaining evidence to that effect. The method of using precipitated casein and alternating with whole milk protein is a rather crude one, anyway. What we would like to do if we had enough breast-milk would be to repeat the experiment of using human milk fat with cows' milk, whey and vice versa. It seems to me it would give very definite evidence as to the rôle of the salts. All we were able to conclude was that we did not get the advantage from feeding the precipitated casein and diminishing the salts that we expected to get when we began the investigation. There were certainly cases in the series which did better on precipitated casein, but there were others which did not.

Dr. Talbot has spoken about estimating the amount of fat as soaps in the stools. I do not believe that our method is an accurate one at all, but we are endeavoring to adopt a standardized method which we will transmit from house officer to house officer. The method is simply to take a definitely measured portion of the stool and mix it with Sudan III and acetic acid, boiling, and then estimating the results by the concentration of the globules. This is a very crude method, and although we have what we call a sliding scale, yet the evidence of the actual amount of fat as shown in this way does

not amount to very much—it is either a soap stool or it is not.

The importance of maintaining a balance between the fat, carbohydrates and protein I quite agree with. You have got to keep the balance more or less constant or some form of indigestion will surely follow. Dr. Talbot asked whether they were all cases of fat indigestion or whether some of them might not have been carbohydrate indigestion. I might say that we did not classify them as to what was the possible primary condition. We classified as carbohydrate indigestion those which did not show fat indigestion, cases showing symptoms of carbohydrate indigestion which were relieved when the carbohydrates were cut down or changed. The other cases which showed fat in the stools we classified as fat indigestion without reserve. The only evidence which I have on that point was obtained from looking over all the histories, which we went into as carefully as possible. This frequently suggested carbohydrate overfeeding, and it was on that basis that I suggested that the carbohydrate fermentation seemed to be a very possible primary cause, and I think that the relationship between fat and carbohydrate indigestion is very close, just as Dr. Talbot has stated.

Book Reviews.

Therapeutics of Dry Hot Air. By CLARENCE EDWARD SKINNER, M.D., LL.D. Third edition. Thoroughly revised to date. Hammond, Indiana: Frank S. Betz Company. 1914.

The first edition of this book was reviewed in the issue of the JOURNAL for Jan. 29, 1903 (Vol. cxlviii, p. 128). The second edition, published in 1905, contained a number of additional case reports, several new illustrations, and a number of technical details. This third edition has been largely rewritten so as to embody and conform with recent advances in knowledge, and contains a new chapter on the incandescent electric light as a local therapeutic agent. It is illustrated with 40 text-cuts. It has the merits and defects of its original, and, in the words of our previous review, "cannot be called a judicial statement of the uses and limitations of this mode of treatment."

Modern Medicine. Its Theory and Practice. In Original Contributions by American and Foreign Authors. Edited by SIR WILLIAM OSLER, Bart., M.D., F.R.S., and THOMAS MCCRAE, M.D. Volume III. Diseases of the Digestive System—Diseases of the Urinary System. Philadelphia and New York: Lea and Febiger. 1914.

The third volume of this standard work now appears in its second edition. This volume takes

up diseases of the digestive system and of the urinary system. The plan of the first edition has been followed. There are authoritative chapters on the various aspects of the diseases of the two systems covered in this volume. These chapters are written by men who have done notable work in the fields that they discuss. It is sufficient to say that this volume, like its predecessors, leaves very little to be desired in the complete and up-to-date discussion of the subjects to which it is devoted.

Diseases of the Rectum and Anus. A Practical Handbook. By P. LOCKHART-MUMMERY, F.R.C.S., Eng., Senior Surgeon to St. Mark's Hospital for Cancer, Fistula, and Other Diseases of the Rectum; and Surgeon to the Queen's Hospital for Children; Late Hon. Surgeon, King Edward VII Hospital for Officers. New York: William Wood and Company. 1914.

This small volume of 350 pages is written by an Englishman and published in New York. Mummery says: "The material for the book has been gathered from my own experience in private practice and at St. Mark's Hospital. This hospital affords unrivalled opportunities for studying diseases of the rectum, for only diseases of the bowel are treated there, and the attendances in the out-patient department are over 7500 in the course of a year, while cases admitted to the wards average about 650. It is much to be regretted that while numbers of doctors from America, the Colonies, and abroad generally, attend the practice of this hospital, the number of English doctors who avail themselves of the clinical material to be found there is deplorably small." The author goes on to state that nearly 50% of the population, presumably of England, have some rectal trouble sometime in their life. He tells us that the book is a practical guide to the treatment of rectal diseases, and that most of the drawings are his own.

The book is much smaller and more compact than either of the volumes on the same subject recently reviewed in this JOURNAL. It has that curious omission of a chapter on Anatomy, which certainly detracts from the value of the book. The treatment of the various conditions described, (and everything which probably comes within the domain of proctology, is described), is brief, definite, and positive. Simple procedures are invariably given preference. The author emphasizes repeatedly the importance of post-operative treatment, and since he is in charge of a special hospital, to which only rectal cases are admitted, he has excellent opportunity of judging both the satisfactory effects of efficient post-operative treatment and the unfortunate results which follow too frequently the average treatment in the hands of the average practitioner.

We notice with surprise that he does not recommend dilatation of the sphincter before operation for internal hemorrhoids. The author's own operation of perineal excision of the rectum is described in much detail, although he frankly says, "It is now, to a large extent, replaced by abdominal-perineal excision." He has had some excellent results by this method; several cases which have already passed the five-year limit. He comments on the similarity between his operation and that of Quénu, and of Hartmann, of Paris; but his own operation was worked out without knowledge of either of the others. In colostomy, he recommends the opening through fibers of the rectus muscle.

There is no bibliography, and comparatively few references to other authors, none to American authors, with the exception of Tuttle. On the whole, however, the book is an excellent small text-book. Its printing, paper, and illustrations are very satisfactory.

The Backward Baby. A Treatise on Idiocy and the Allied Mental Deficiencies in Infancy and Early Childhood. By HERMAN B. SIEFFIELD, M.D., New York. Awarded the Alvarenga Prize of the College of Physicians of Philadelphia, July 14, 1914. pp. 184, with 22 original illustrations in the text. New York: Rebman Company. 1914.

The author states in his preface that "the aim of this prize essay is to present to the profession a practical survey of the etiology, pathology, diagnosis and treatment of the diverse mental deficiencies as they occur in children under five years of age. The existing excellent monographs and text-books on the subject are," as he truly states, "almost exclusively devoted to the study of feeble-mindedness in children of school age and adults." There was, therefore, an opportunity to write an epoch-making book. Unfortunately, the author has not taken advantage of this opportunity, but has instead written a superficial and incomplete treatise on the subject. It is interesting and instructive, but falls far short of what it might have been. We hope that he will take advantage of the opportunity and, using this book as a basis, write a new one.

A Mind Remedy. By JOHN G. RYERSON, M.D. Boonton, N. J. 1914.

The writer's idea as stated by himself is that he proposes to show that scores of the most common diseases have such a uniformity of symptoms as to be justly classed as one disease, and that he has found what is practically a specific for this disease, which is lactose. The large number of cases, which include asthma, eczema, locomotor ataxia, organic heart disease, interstitial nephritis, difficult labor, puerperal convulsions, and many others, are so imperfectly re-

ported that no conclusions can be drawn; and the looseness of thought which allows the writer to include among his cases some where he claims the figure, or voice, was improved, the apparent age lessened, the hands and feet made smaller by his treatment, does not inspire confidence. This book may be neglected except as a curiosity of medical literature.

A Treatise on Diseases of the Rectum and Anus.

Edited by A. B. COOKE, A.M., M.D., Formerly Lecturer on Diseases of the Rectum and Professor of Anatomy in the Medical Department, Nashville, etc. Assisted by WILLIAM M. BEACH, A.M., M.D., Pittsburgh, Penn.; GEORGE B. EVANS, A.M., M.D., Dayton, Ohio; J. COLES BRICK, M.D., Philadelphia, Penn.; ALOIS B. GRAHAM, A.M., M.D., Indianapolis, Ind.; GRANVILLE S. HANES, M.D., Louisville, Ky.; LOUIS J. KROUSE, M.D., Cincinnati, Ohio; COLLIER F. MARTIN, M.D., Philadelphia, Penn.; FRANK C. YEOMANS, A.B., M.D., New York City; A. J. ZOBEL, M.D., San Francisco, Cal. With 215 illustrations in the text and 21 full-page plates, 7 in colors. Philadelphia: F. A. Davis Company. London: Stanley Phil lips. 1914.

This admirable and rather small volume of six hundred pages treats its subject in an unusual manner. In his foreword, the author says that at least 20 years ago he decided to write a practical treatise on Diseases of the Rectum, based on his own personal experience. "But as circumstances directed my interest and practice into the broader field of general surgery, enthusiasm waned and the work was laid aside when only partially completed." Recently he has revised the previously written chapters and has edited the remainder. The book is, therefore, Dr. Cooke's own text-book in its first half and a series of monographs from the pens of nine specialists in the latter half. Moreover, the rectal surgeon of twenty years ago has now become a general surgeon, and as a result we find a wide general experience concentrated upon a specialty. This is a very desirable and unusual occurrence. The book commences with a very satisfactory chapter on anatomy and physiology. Dr. Cooke's own contributions include most of the commoner conditions of the anus and rectum. The other 14 monographs treat of stricture, benign and malignant tumors, neuroses, trauma, local anesthesia, major operations, and interesting chapters on recto-colonic alimenta-

tion and relation of rectal diseases to the general health. An excellent feature of much of the work is a brief outline at the beginning of each chapter and history of the subject which is about to be considered. The illustrations are numerous and unusually good; in spite of this it has been found possible to eliminate the extreme gloss of the paper so often used for the purpose of illustrations, for which the editor deserves our thanks. The binding, printing, index, etc., are entirely satisfactory. The book is to be cordially recommended; it is really a very admirable hand-book,—long enough, but without a single unnecessary page.

The Tonsils,—Faucial, Lingual, and Pharyngeal.

With Some Account of the Posterior and Lateral Pharyngeal Nodules. By HARRY A. BARNES, M.D., Instructor in Laryngology, Harvard Medical School; Surgeon in the department for diseases of the nose and throat; Boston Dispensary; Assistant Laryngologist, Massachusetts General Hospital; Member of the New England Laryngological and Otological Society; Members of the American Laryngological, Rhinological and Otological Society. Illustrated. St. Louis: C. V. Mosby Company. 1914.

This is a book of 160 pages on the tonsils and the other parts of the tonsillar ring, including their development, anatomy, physiology, pathology and surgery. The author states in the preface that his object is "to put into concise form the facts concerning the lymphoid tissues of the throat," and he has succeeded admirably in doing so. He has combined into a consecutive and attractive manual the results of his work in the pathological laboratory, his experience in a large clinical service and the review of several of the more important publications. The book presents the subject better and more thoroughly than do the corresponding chapters in any of our text-books. It is not encumbered with varying points of view, although the student who wishes to go deeper will find numerous references to other authors. Much has been written in recent years about the tonsils, but this is so scattered that it is not easily available. In collecting this material the author has been guided by his own judgment, which represents the opinion and practice of American authorities of the present day. The illustrations are original and to the point. A better understanding of the tonsillar ring is desirable not only for the laryngologist, but also for the general practitioner and pediatricist, and to all of these this book should be welcome.

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FEDERAL OR LOCAL ADMINISTRATION OF MARITIME QUARANTINE.

In several recent issues of the JOURNAL we have commented editorially on the question of the transfer of the Boston Quarantine Station from municipal to federal control. On January 1, a hearing on this subject was held before the City Council, and at the request of that body a committee of six was appointed by the Boston Chamber of Commerce to study the problem and report at a future meeting.

The special committee on the quarantine service is composed of former Lieutenant-Governor Robert Luce, chairman; Magnus W. Alexander of the General Electric Company, who served last year on the State Commission on Pensions; George W. Franklin of the Walker-Gordon laboratory; Irving B. Howe of A. H. Howe and Sons, shoe dealers; Demarest Lloyd of the Boston Journal; and Hugh D. McLellan, lawyer.

On Thursday of last week, January 28, this committee held a public hearing which all interested persons were invited to attend for expres-

sion of their views or to submit supplementary information. The committee had before it the stenographic records of the hearing of the City Council on January 1 and other data hitherto presented. Although the subject of maritime quarantine has previously been considered in the JOURNAL, the question is of such importance that its further discussion at the present time seems desirable.

Maritime quarantine is about as old a subject as history. In general but little thought is given to it outside of those directly concerned, except when some epidemic occurs, or as recently, when the City of Boston discussed the advisability of turning the local quarantine station over to the Public Health Service. The expense of maintaining a model quarantine station is considerable and largely has to be borne by the taxpayers of either city, state or nation.

This country is a union of states, and for the common welfare a central form of representative government exists, with certain fixed powers. Each unit or state also has recognized rights. One of the rights of the national government is to regulate or restrict commerce with foreign countries, and in that the state must subordinate itself to the nation.

In 1893 Congress passed certain quarantine laws and designated the manner in which they should be carried out. It was declared unlawful for any vessel from a foreign port to enter any port in the United States except in accordance with the provisions of this act and with such rules and regulations of state and municipal health authorities consistent with this act. A penalty is provided for violation of same.

It is generally accepted that among intelligent people, the least governed the better. International or interstate quarantine is a matter bound to interest the country as a whole, for any port of entry may distribute people to every state in the union or to adjacent countries with whom we have treaty obligations, including certain sanitary protection.

Hence we find that the United States passes a national law and at the same time makes provision for any state or municipality to work its solution in its own way as long as the letter of the law is carried out. Further, there is nothing to interfere with the state adding such rules as it sees fit for local safety. For example, every quarantine station would be required to detain a case of bubonic plague and clean up the ship, but would not be required to do the same

with a case of measles or scarlet fever. The latter type of cases would be provided for under local rules.

Under the same Act of Congress an organized branch of the federal service was authorized to carry out these acts, namely, the Marine Hospital Service, now the Public Health Service, and it was provided for the Surgeon-General of that service under direction of the Secretary of the Treasury, to coöperate and aid state and municipal health boards in the enforcement of rules and regulations laid down by the Secretary.

In looking over the regulations issued in 1910 may be found sections explaining the above in detail. Pages 1 to 14 relating to regulation of foreign commerce by the government, show how local health boards must be familiar with federal law and enforce the same; how, in case of failure on the part of local health authorities to enforce the law, the United States can insist on a federal officer signing health certificates before a ship can enter a custom house, which means permit to discharge passengers, crew, and cargo.

These regulations are being constantly changed to facilitate commerce as new discoveries are being proven as to the transmission of disease. Also the government is being constantly informed through medical officers stationed at our consulates in foreign countries or by the consuls themselves of the sanitary conditions and existence of epidemic disease throughout the world. This information is distributed by the Public Health Service to all concerned.

The press inference is that it would be detrimental to local business to change from local to federal control for the following reasons: The port would be closed from sunset to sunrise. Ships from Canadian ports would be subject to delays that they now escape by being allowed to pass without stopping, regardless of time. Government officials with attendant red tape and, someone added, gold lace, would tend to delay clearance. In case of doubt decisions could be more quickly given than to have to wait an opinion from Washington.

On the other hand, it must be remembered that local officers have to conform to federal law and said law must have provided for these privileges or local officials might be accused of violations. As a matter of fact, the local men have always been efficient in this matter and the regulations provide under certain circumstances for ships to be passed after dark and for permits for

ships from adjacent territory, hence there can be no suspicion of special privilege. The fact that a large proportion of arriving passengers are destined to points outside the state brings up the question whether or not the local community or the nation should bear the expense.

The commercial world is moving steadily forward and today sailing ships are almost a thing of the past, steamers having taken their place. This is important as changes in structure and speed of ships affect quarantine problems. Sailing vessels were usually long enough at sea to cover the incubation period of disease and were easy to disinfect, their greatest danger being the carrier of disease in apparent good health. Steamships cover the route more quickly, are more difficult to disinfect thoroughly owing to their more complicated structure and may easily arrive with passengers or crew in the incubation stage. The danger of port infection always has to be considered as it depends on a knowledge of sanitary waterfront conditions of the port cleared as well as entered. For example, a plague infected rat escaping a ship in Boston might be a far more serious matter than the same event happening in some of the European ports.

Shipping firms are naturally interested in seeing that they have as little red tape as possible in clearing or entering their ships. Chambers of commerce are anxious that their cities may offer every facility for the landing of passengers and cargo in order that local commerce shall increase. They may feel that it is easier to do business with officials they know and who in turn are familiar with local conditions and problems. They want prompt decisions and officials interested in local welfare.

There is no known reason why the federal government cannot meet the local authorities and arrange to keep a certain number of local men in permanent employ to see that local interests are best served in compliance with federal regulations. The objection to the chief being in Washington should not be a stumbling block, for there is nothing in the law or regulations that prohibits officers in charge of quarantine stations having or using such authority as would cover all ordinary problems or emergencies. The objection made to gold lace seems largely due to military semblance and the natural opposition to military government incompatible with a republic. The Public Health Service is not a military service but a civil organi-

zation in which part of the officers are commissioned by the President and part appointed by the Secretary of the Treasury under the rules and regulations of the United States Civil Service Commission. It may better be considered a sanitary police organization, a civil organization charged with the administration of laws relating to public health but without military rank or power. It is the nearest thing we have to a National Board of Health. There is no reason why it should not be conducted on broad business lines and appoint such officers as are best qualified for local needs. One of the best things that could happen would be for Congress to recognize it as a beginning of a National Department of Health and place or reorganize it on a liberal civil service basis. If this service is feared for any good reason by the commercial interests it is time it was reorganized on such a basis that it would be welcomed.

In an organized service with the functions of the Public Health Service a distinctive uniform is necessary for certain work, to distinguish grades, for discipline, and identification. For this purpose a simple uniform ought not to be difficult to devise. The uniform of the New York State Quarantine Service which is of a decided distinctive type has never yet been the cause of delay or complaint of delay in the work.

To sum up, there is nothing under the law which local officials can grant but what the federal officials can grant. It is a question whether the community prefers to pay the cost of maintaining a station for emergency, whether it would be better for the commercial and shipping interests to have local officials or federal officials administer the federal law, and whether the large interests of public health are not to be regarded above all local and personal considerations.

At a meeting of the City Council on Jan. 30 the proposed ordinance, effecting the quarantine transfer, was rejected without prejudice, in order that the matter may be brought up as new business before the new Council next week.



A CAREER OF PROFESSIONAL AND PUBLIC SERVICE.

On the first of February, Dr. John Hildreth McCollom retired after a service to the City of Boston in various medical capacities for forty-two years, the past twenty years of which were

spent at the Boston City Hospital. During these years he has made a notable record of professional and public service, and his retirement from more active participation in the administration of the hospital is an important loss to that institution.

After serving throughout the Civil War as hospital steward in the Thirtieth Regiment of Massachusetts Volunteer Infantry, Dr. McCollom first established his connection with the Boston City Hospital as house officer in 1868. In 1872 he became assistant to the city physician of Boston and served in that capacity until 1881 when he became himself city physician. In this capacity he served the public faithfully and efficiently until 1895, when he was appointed resident physician of the newly opened South Department. Here he served until 1909, acting since 1900 as physician for infectious diseases. It was during this period that he made his most valuable contributions to medical science.

Dr. McCollom's contributions to medical literature began early in his career. His first articles on "The Use of the Obstetric Forceps" and "The Smallpox Epidemic in Boston," were published in this JOURNAL in 1882 (Vol. 107, page 266 and 344 respectively). Following these the bibliography of his publications forms an important list of over thirty-five titles, covering a wide range of medical and surgical subjects. Most noteworthy of all these are his contributions on diphtheria, representing the results of his epoch-making work at the South Department. At the time when Dr. McCollom took charge of this department the mortality rate from diphtheria was 18 per 10,000 of population and nearly 50% of those infected. This was just before the introduction of intubation and antitoxin. It was the great achievement of Dr. McCollom by introducing these measures, not without opposition, and by the persistent efficiency of his own watchful professional care, to reduce the incidence and mortality of diphtheria almost immediately to their present low rate. Our feeling of security against this frightful scourge of humanity is now so familiar and easily assumed that we are prone to forget how great a service this was to mankind and to the progress of medical science. Dr. McCollom has won international recognition for this and for his similar work in the suppression of scarlatina, as evidence of which he was chosen in 1908, from among the entire medical profession, to write the chapters on

diphtheria and scarlet fever in Osler's "Modern Medicine." As city physician and as superintendent of the South Department, Dr. McCollom put into effect in practice the modern methods in control of contagious infections, so that since the opening of the South Department in 1895 there has been no general epidemic of scarlet fever in Boston comparable with those in previous years. The statistics of these diseases are modestly but eloquently presented in a series of graphic charts published by Dr. McCollom in 1914.

Upon the retirement of Dr. Rowe in 1909, Dr. McCollom became superintendent of the Boston City Hospital and for the past six years has displayed in that office the same zealous efficiency of public service that he showed as city physician and at the South Department. This period has been marked by important progress in the development of the hospital in which Dr. McCollom has had a prominent and guiding part. No detail of administration was so minute as to escape his watchful oversight. His standard of fidelity in the littlest things of public service was of the highest. To the discerning eye evidence of this is patent in every aspect of his work,—in the painstaking care, for instance, of his annual reports and hospital statistics. In his last report (the fiftieth of the hospital) is a diagrammatic table illustrating the percentage distribution of funds in the administration of the hospital, a diagram requiring much pains and labor for its preparation, and presenting results of important value to professional hospital administrators. Dr. McCollom was not only a public hygienist in advance of his time but established a standard of honorable fidelity in the administration of public funds which might worthily serve as an exemplar to others in public service.

Dr. McCollom has been fortunate in that his work has been genuinely appreciated by those of his own time and generation. In accepting his resignation as superintendent, the trustees wrote in part as follows:—

"The trustees are exceedingly sorry that your health has compelled you to take this step. They are reluctant to part with an associate with whom they have enjoyed such long and pleasant relations, and one whose unflagging zeal and earnest and untiring efforts for its welfare have contributed very much to the upbuilding and high standing of the hospital. But above all else stands the record of the great work you

have done for the South Department, which will be a monument to you more enduring than bronze or stone. Your unfaltering faith and courage in the use of antitoxin, which has so marvellously decreased the death rate from diphtheria, has saved to the world many thousands of useful lives and a grateful public will ever hold your name in high appreciation and gratitude for your noble services and research. After forty-two years of faithful service for the city of Boston, you have the consciousness of having achieved and merited a position that places you in the front ranks of the benefactors of mankind. In your retirement you carry with you the well wishes and high commendation of the trustees and the public. The trustees extend to you their sincere sympathy and the hope that a well-earned rest may restore such measure of health as to enable you to pass many years in comfort and enjoyment."

Dr. McCollom's contributions to medical science have also been abundantly recognized by his colleagues, and as emeritus professor of contagious diseases in the Harvard Medical School, he holds a position at the head of his special department of medicine.

It is a matter of the greatest good fortune for the community and the profession that Dr. McCollom's withdrawal from the hospital will leave him free to continue in private the study and practice of his specialty. The most cordial esteem and regard of the profession follow him with wishes for continued health and activity.

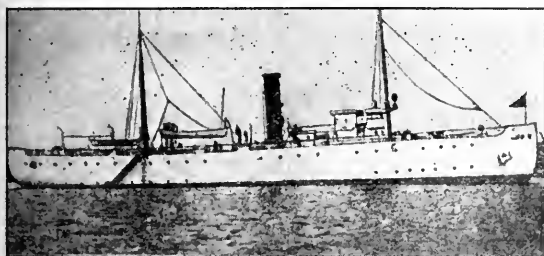
His has been a long and honorable career of professional and public service whose ripest and most honored years are yet to come.

A HOSPITAL SHIP FOR DEEP SEA FISHERIES.

In the issue of the JOURNAL for November 23, 1911, we published an editorial on "The Romance of Medical Relief at Sea," describing the plan, initiated by Drs. L. L. Williams and T. W. Salmon to provide a hospital cruiser to patrol the deep sea fisheries of our shore and carry first aid to the sailors who are endangering their lives in the common service. In 1912 a bill aiming to embody this project in legislation was introduced before the National Congress by Representative Gardner, asking an appropriation of \$50,000 for the purchase of such a craft and for a suitable annual appropriation for its maintenance. This bill was discussed in

Congress for over a year, was approved and advocated by numerous local and national bodies and was warmly championed by individuals, among them Dr. Horatio R. Storer and other physicians. Notwithstanding this, probably for political reasons, the bill, after being approved in committee and reported to Congress, was finally defeated in 1913. The project, however, was not at an end.

In the summer of 1914, Mr. Gardner obtained an amendment to the pending revenue cutter bill permitting the Secretary of the Treasury to fit out a United States revenue cutter to serve as a hospital ship in the deep sea fisheries off the New England and Newfoundland coasts. The *Androscoggin* was selected and equipped



THE ANDROSCOGGIN.

for this purpose and on December 22 was assigned to the Boston and Gloucester fishing fleet from January 1 to February 20. Capt. W. E. W. Hall is in command of the vessel and Dr. O. H. Cox of the United States Public Health Service has been detailed to take charge of the medical department. The equipment of the ship for medical and surgical purposes has been thorough.

"Three large rooms have been set aside for the hospital quarters. One is a sick bay with six sanitary cots, another is the isolation ward, with two cots, where contagious cases found among the fishermen will be cared for, and the third or centre room, consists of an up-to-date operating room, patterned after the hospitals on battle-ships. There is an operating table, water sterilizing tanks and basins, surgical instruments and in fact all the paraphernalia found in a hospital."

The route of the *Androscoggin* on its cruise comprises the fishing territory off the entire coast of northern New England and the Provinces, including Brown's bank off Nova Scotia and the Banquereau and Sable Island banks to the eastward. The vessel sailed from Boston early in January and on January 7 left Gloucester for her initial cruise. In the early days of her ser-

vice she seems amply to have justified the expectations of those who have consistently urged the necessity of such a service. Within a week the vessel was able to transfer from a fishing schooner to hospital at Halifax a patient with appendicitis in urgent need of operation, and numerous minor cases were treated aboard the *Androscoggin* or by boarding parties on their own ships. Later, when the Belgian relief ship *Camino* was disabled, the *Androscoggin* aided the British steamer *Kanawha* in conveying her safely to port. It is a matter of great satisfaction to physicians and to all interested in problems of medical relief, that it has at last been possible to establish a service so urgently needed. The success of this first six-weeks' cruise of the *Androscoggin* should lead to the extension of the plan for such service in the future, a service in which the United States has hitherto been discreditably inferior to Great Britain, France and other civilized nations.

THE NURSING QUESTION.

A BILL is now before the Massachusetts Legislature to amend the requirements for nursing to the following effect:

"Applicants must show the usual qualifications as to age, character, etc., and must have received a certificate of graduation from a training school for nurses, considered efficient by the board, etc., etc. Applicants for limited registration under this act, who shall furnish proofs as to age, character, etc.....but who cannot qualify as graduates of approved training schools for nurses...shall be examined by said board, and if found competent to care for cases which do not require expert services, shall be registered with right to use the title of household nurse, and shall receive a certificate in testimony thereof, etc. Nurses registered with the title household nurse, shall not care for the major surgical cases, nor make internal obstetric examinations....."

"After January first, in the year nineteen hundred and sixteen no person shall engage in the work of nursing for hire in this commonwealth unless he or she has become registered in accordance with the provisions of this act."

"The board shall have authority under this section to investigate at any time the training schools for nurses in this commonwealth for the purpose of determining their fitness and efficiency as shown by their general equipment, by the character, the methods and the extent of in-

struction given. For the purpose of conducting this investigation the board may employ a person legally entitled to the title of registered nurse."

It would appear from a paper entitled, "Some Problems in Relation to Nurses' Training Schools," read by Dr. Charles Stover before the New York State Medical Society, that only ten per cent. of the nursing outside of hospitals in the state of New York is done by graduate nurses. There are no figures to show that this proportion is different in Massachusetts. In other words, nine-tenths of the people,—probably those who cannot afford to pay the minimum price of twenty-one dollars a week are a considerable proportion—must get along without trained nursing when they are sick. Although provision is made in the bill for "household nurses," legislation is asked to prohibit nursing for hire unless registration has been obtained.

At the meeting of the New York society at which Dr. Stover read his paper a committee was appointed consisting of Dr. Stover, an ex-president of the society, Egbert LeFevre, dean of the University and Bellevue Medical College, Alexander Lambert, professor in Cornell Medical College, and Roswell Park, the eminent surgeon. The report of this able committee should cause our legislators to consider seriously whether we in Massachusetts may not adopt the same conclusions. The report was in part:

"It is a fair conclusion that the standard for entrance in New York is too high for practical results. . . . It is more important that the people have small hospitals than that a few highly trained nurses obtain the thus-far little coveted title of R. N. . . . Meanwhile your committee is of the opinion that the State should recognize the nurse problem as an experimental one, to be regulated at present by wise administration rather than by legislation."

After all is said, the health of the public under the present laws is in the hands of the physicians who have been registered by the Commonwealth and the responsibility is theirs and not that of their assistants, the nurses. If the physician finds his assistant unsatisfactory he can procure another, adapted in training, personality and pay to his patient's requirements. Perhaps in the future the nursing profession may provide trained services for all of the people for good pay, for small pay, or for no pay at all, just as now the medical profession furnishes

skilled care to all the sick. When this time arrives, if it does, it may seem best for the State to limit nursing to those who are registered. Conditions at present do not justify such a course. That the Board of Registration of Nurses should have supervision over the training school for nurses is a debatable point and does not correspond with the practice in the case of the Board of Registration in Medicine and the medical schools.

CONGENITAL PYLORIC TUMOR.

In an article printed elsewhere in this issue of the JOURNAL, Dr. Charles L. Scudder presents and emphasizes an important differential classification of cases of congenital infantile pyloric stenosis. The obstruction in these cases may be either functional or organic, it may be due either to muscular spasm or to the presence of an actual tumor impinging upon the lumen of the pylorus. That true and uncomplicated pylorospasm may exist there can be no reasonable question. In babies presenting this condition, the symptoms are not pernicious, they are variable, and are characterized chiefly by intolerance of the stomach for the total amount of food which it ought normally to contain at the given age, though on lesser amounts of somewhat stronger food the nutrition can be fairly well maintained. On the other hand, babies in whom the obstruction is due to pyloric tumor are intolerant of all food, and present a fairly invariable train of fatally progressive symptoms. The most important point, therefore, in the diagnosis of cases of congenital infantile pyloric stenosis is the early and accurate differentiation of these two classes of cases. This may most effectively and reliably be accomplished by means of the bismuth meal x-ray.

It has been maintained by many that in cases of obstruction due to pyloric tumor there is present also an element of pylorospasm. This statement seems to be fairly disproved by the series of cases reported by Dr. Scudder from his personal observation, and collected by him from the literature and from the personal communications of other surgeons, in which bismuth meal x-ray or autopsy has shown the persistence of absolute pyloric obstruction by tumor following symptomatic relief of the condition by posterior gastroenterostomy. Dr. Scudder speaks with authority on this subject by virtue of his extensive and

successful experience in the treatment of such cases. For the general practitioner, the most valuable lesson to be derived from this consideration is the crucial importance of the prompt and accurate differential diagnosis of all cases of congenital pyloric obstruction before it is too late for surgical intervention to afford prospect of life-saving relief.

MEDICAL NOTES.

EUGENIC BILL IN INDIANA.—Report from Indianapolis states that on January 21 the Indiana Senate passed a bill requiring that all persons before obtaining a marriage license must present a satisfactory certificate of health from a physician. The bill awaits action by the house of representatives.

PATHOLOGIC PICTURES IN NATURAL COLORS.—On Friday and Saturday of last week, January 29 and 30, at an exhibit of x-ray materials in Atlantic City, N. J., there was shown a valuable collection of pictures of pathologic specimens in natural colors, made by means of the new kodachrome plates. This is the first public exhibit of work of this character and the possibilities suggested by this method of reproducing pathologic material are of distinct interest to physicians.

BRITISH NEW YEAR'S HONORS.—Among the recipients of British New Year's honors recently announced are, as usual, several physicians. Sir William MacGregor, G. C. M. G., C. B., is appointed to the Privy Council, Surgeon Major General Eugene Fiset of Canada, is created C. M. G., and the order of knighthood is bestowed on Perceval Aleyne Nairne, Chairman of the Committee of the London School of Tropical Medicine.

NEW YORK DEATH RATE DECLINES.—The mortality during the past week was noteworthy because of the extremely low point which it reached as compared with that of the corresponding week in 1914,—13.10 last week as against 14.6 in 1914. Inasmuch as the mortality of the previous weeks of last year was relatively high, this drop for the city is very welcome. Taking into consideration the increase of the population, the weekly rate during the week just ended shows a decrease equivalent to 171 deaths. The deaths from influenza numbered approximately the same as during the same week in 1914; on the other hand the deaths from organic heart diseases, diseases of the digestive system, pulmonary tuberculosis,

Bright's disease and nephritis, and diseases of the nervous system were considerably fewer.

The number of deaths from pneumonia, while much higher than in the corresponding week in 1914 was considerably below that of the week ending January 16th, 1915. The mortality from the infectious diseases, especially measles and diphtheria was very much below the average.

Viewed from the point of age, the decreased mortality was apparent in all the age groupings of the population.

The death rate for the first four weeks of this year was 14.32 per 1000 as against 14.62 per 1000 for the corresponding period in 1914, a decrease of .31 of a point.

EUROPEAN WAR NOTES.—Report from Budapest states that on January 2 Dr. William Crookston, the new director, and Dr. Henry Day, the new assistant director, of the American Red Cross Hospital at Budapest, arrived in that city from New York by way of Genoa. Dr. Charles MacDonald of Salem, N. J., the former director, and Dr. Cary A. Snoddy of Knoxville, Tenn., the new director of the American Red Cross Hospital at Vienna, also arrived at Budapest on the same day.

It is announced that Mr. William Lindsey of Boston, has promised to give, if necessary, \$10,000 to pay the expenses of the Harvard Medical School unit which it is planned to send to the American Ambulance Hospital at Paris on April 1. This unit will have charge of wards aggregating one hundred and fifty beds.

An official report of the American Red Cross Society published on January 22, records the activities of that organization from August 1, 1914, to January 1, 1915. During this period a total fund of \$1,188,112. was collected by the Red Cross. Up to January 9, \$760,510. of this fund has been expended in the maintenance of forty-five surgeons and one hundred and fifty nurses on war duty in Europe.

"By March the six months' duty, which each member of the various units agreed to give the Red Cross, will have expired, and those who desire to return to this country will be allowed to do so, other surgeons and nurses being sent to Europe to take their places.

"The report shows that up to January 9 the Red Cross had shipped to Europe 772,900 pounds of medical cotton, 802,400 yards of gauze, 709,000 assorted bandages, 3168 rolls of adhesive plaster, 13,965 pounds of chloroform and ether, 77 cases of drugs and medicines, 35 cases of instruments, 20 United States army field medical outfits, 15,000 doses typhoid prophylactic, 10,000 tubes smallpox vaccine, 50,000 doses tetanus antitoxin, 9,500 blankets, 2,211 shawls, 516 coats, 1,740 sweaters for women and children, 10 barrels of alcohol, and 2,638 cases of miscellaneous supplies."

The French Red Cross, consisting in reality of three affiliated societies, has been taking an active part, in conjunction with the French War Office, in the care of wounded soldiers in the north of France. "At the beginning of the war this society established 93 dressing stations, 83 dispensaries and 35 canteens at railway stations. The principal work since undertaken by the society has been the preparation of auxiliary hospitals; it has organized altogether 771, which contain now 56,579 beds. To bring the wounded to these hospitals, however, it possesses only 32 automobiles, which are stationed for the most part at Paris, Amiens, Creil, and Rheims."

On Jan. 30 the total of the New England Belgian relief fund amounted to \$186,276.41; the Massachusetts Red Cross fund to \$106,997.28; the New England Jewish relief fund to \$29,727.92; and New England British relief fund to \$17,506.82; the New England Polish relief fund to \$14,961.67; and the Russian relief fund to \$10,674.00.

In New York the following committee has been appointed to organize and raise a Serbian relief fund: Willard Straight of J. P. Morgan and Company, Mrs. Edward Hewitt, Prof. M. I. Pupin of Columbia University, Dr. Albert Shaw, Mrs. Lawrence Elliman, Mme. Grouitch, Mrs. Ethelbert Nevins, Mrs. John L. Griffith and Miss F. Hastings, secretary.

BOSTON AND NEW ENGLAND.

HOSPITAL CONCERTS FOR FEBRUARY.—The concerts of the Boston Hospital Music Fund for February have been announced as follows:—

Feb. 7 Perkins Institution for the Blind, Watertown.

Feb. 14 and 21 Boston City Hospital.

Feb. 23 Cullis Consumptives' Home.

Feb. 28 Cambridge Homes for the Aged.

MASSACHUSETTS HOMEOPATHIC HOSPITAL.—The annual meeting of the corporation of the Massachusetts Homeopathic Hospital was held in Boston on January 26. The present officers were reelected. Owing to the unusually large number of free patients last year, a deficit of \$20,000 was announced in the financial report. Edward H. Mason, the president, reported that during 1914, 6,489 patients were treated in the main hospital, and in all departments 23,260, an increase of 808 over 1913.

At the Haynes Memorial department for contagious diseases, 757 patients were treated, 300 more than in any other year since the opening of the department in 1908.

BROOKLINE FREE HOSPITAL FOR WOMEN.—The recently published thirty-ninth annual report of the Brookline (Mass.) Free Hospital for Women records the work and progress of that institution for the year ended October 1, 1914. During this period the total number of patients operated

on was 705, an increase of 23 over the previous year. In the out-patient department there were 6,190 consultations and 1,350 new patients of whom 742 were referred to the main hospital. A class of twelve nurses was graduated from the Training School. The report is illustrated with several full page plates representing Potter ward, the hospital building and a portrait of the late Dr. William H. Baker, founder of the Hospital, of whom an admirable obituary is presented in the report by Dr. William P. Graves.

PORTLAND BOARD OF HEALTH.—The recently published twenty-seventh annual report of the Portland (Me.) Board of Health records the activities of that body for the year ended April 1, 1914. During this period the city suffered from a small epidemic of forty-seven cases of small-pox which was efficiently controlled and terminated with no deaths. The total number of deaths during the year was 1,059, of which 121 were from pneumonia, 109 from nephritis and 86 from tuberculosis. The total number of births was only 1,262.

DIPHThERIA IN HOLYOKE.—The latest public health bulletin issued from the office of the Massachusetts Commissioner of Health, presents the following statement relative to a small epidemic of diphtheria which occurred in Holyoke, Mass., during the late summer and fall of last year:—

"Twenty-nine cases of diphtheria were reported by the Holyoke Board of Health, the first on August 20 and the last on November 4. Since November 4 no cases have been reported from the Springfield district. The 29 cases occurred in 20 homes. In 15 families there was one case each; in two families, two cases each; in two families, three cases each; and in one family, four cases. The 10 houses were apartment houses. The ages of the patients varied from two to fourteen. The epidemic occurred soon after the opening of the Springdale School on September 8.

"There were three deaths, one in October and two in November.

"The probable cause of the epidemic was some mild unrecognized diphtheria bacillus carrier. It could not be ascertained whether the infection actually started within or without the school; that it spread among the school children, however, is a known fact, and undoubtedly by direct contact."

EPIZOOTIC OF FOOT AND MOUTH DISEASE.—On January 22, the federal quarantine for foot and mouth disease in Massachusetts was raised from the counties of Barnstable, Berkshire, Dukes, Franklin and Nantucket. The only territory in the State where the disease now exists is at Dracut and in the vicinity of Rehoboth and Swansea. Portions of the counties of Bristol, Essex, Hampden, Hampshire, Middlesex,

Norfolk, Plymouth, Suffolk and Worcester are still, however, considered exposed areas.

In Connecticut the quarantine was, on the same day, raised from the counties of Fairfield, Litchfield, Middlesex, New London, Tolland and Windham, but portions of the counties of New Haven and Hartford are still considered as exposed area.

In Rhode Island the quarantine was raised from the counties of Bristol and Washington, but portions of the counties of Kent, Newport and Providence remain as exposed territory. Report from Providence on January 22 stated that on that day two more infected herds were discovered, one at Pawtucket and one at Pocasset.

MENINGITIS AND POLIOMYELITIS IN MASSACHUSETTS AND NEW YORK.—The weekly report of the United States Public Health Service for January 22, states that during December, 1914, there were in Massachusetts twelve cases of cerebrospinal meningitis and six of poliomyelitis, and in New York, twenty-seven cases of meningitis and sixteen of poliomyelitis.

THE SANITATION OF CHINATOWN.—The Boston Board of Health has recently made an active investigation of sanitary conditions in the Chinese quarter of this city and has ordered extensive changes and improvements in that district. The alterations required are indicated by the following regulations which have been issued by the Board:—

"Every building must be equipped with two ways of entering and leaving, one in front and one in back. All sewer pipe openings must be permanently closed. By means of such openings in cellars, it is claimed, gamblers have been able during police raids to throw gambling implements wholesale into the sewers. All swinging gas fixtures must be replaced with stationary fixtures. The fire sprinkler system must be installed in every building occupied by eight or more families. Every basement must be ventilated to the satisfaction of the Health Board. Every basement must have proper exits and entrances. All stairways must be thoroughly repaired. All fire balconies must be repaired, and buildings lacking them must immediately install them."

MILK AND BABY HYGIENE ASSOCIATION.—The Boston Milk and Baby Hygiene Association has recently issued a small book to mark the close of the sixth year of its activities.

"From 1906 to 1910 there was an average death rate of 133 out of every 1000 babies born. Since the organization of this association the rate has steadily decreased until it was reported in 1914 the infant mortality was reduced to 100 out of 1000. It is hoped that in the coming year this rate may be even more decreased through the work of this society.

"During the past year the association provided medical supervision and nursing service

for 4,097 babies, which is over one-fourth of the babies that are born here every year. It also cared for 20 per cent. of the babies that were under one year old.

"Free advice was given at 655 medical clinics, at which the attendance numbered 19,673. This is an increase of 43 per cent. over last year's work.

"Under the auspices of this society 12 milk stations have been maintained in the poorer districts of the city, where mothers could obtain tested milk at cost. The mothers in many homes were instructed by 14 specially trained nurses employed by the society. These nurses made 50,221 visits to homes and demonstrated to the mothers and children in the neighborhood of the milk stations through the 'Little Nurses' Club, the care of babies.

"Besides this work, the society has conducted an active campaign for spreading knowledge of the prevention of sickness and the proper care of babies.

"The cost of maintaining this work is about \$25,000 a year. The Association has no endowment and the work has had to be done by means of public subscription. It is interesting to note that \$10 provides medical and nursing supervision for one baby for nine months and \$20 will care for two babies for one year. Fifty dollars pays for the expenses of a milk station for one week which has the registration of 2,000 babies. One thousand dollars provides a nurse and incidental expenses of one milk station for one year, and \$300 provides service for one station through the hot weather.

"The headquarters of the Association are at 26 Bennet street. The officers for the coming year are: Chairman, Edward R. Warren; secretary, Michael M. Davis, Jr.; treasurer, Charles E. Mason; director, George R. Bedinger; medical directors, Drs. Arthur A. Howard and Harold A. Gale."

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending Jan. 26, 1915: Diphtheria, 79, of which 6 were non-residents; scarlatina, 89, of which 15 were non-residents; typhoid fever, 8; measles, 60; tuberculosis, 54, of which 1 was non-resident. The death-rate of the reported deaths for the week was 15.25.

Current Literature

SURGERY, GYNECOLOGY AND OBSTETRICS.

JANUARY, 1915.

1. *PORTER, M. F. *Boiling Water Injections into the Thyroid Gland for Hyperthyroidism.*
2. *CLOPTON, M. B. *The Diagnosis and Treatment of Osteomyelitis.*

3. *RODMAN, W. L. *Pylorctomy and Partial Gastrectomy or Excision of the Ulcer-Bearing Area in the Treatment of Gastric Ulcer.*
4. TUPPER, T. *Transplantation of Ovaries.*
5. *BUFORD, C. G. *Goitre in Children.*
6. WATERS, C. A., AND COLSTON, J. A. C. *A Report of Three Cases of Fibrosclerosis of the Penis Treated by Roentgenization Without Improvement.*
7. NOBLE, G. H. *Intra-abdominal Dynamics and Mechanical Principles Involved in the Cause of Backward and Downward Displacements of the Uterus.*
8. DOOLIN, W. *Experiments on the Transplantation of Gastric Mucous Membrane.*
9. *RUNYAN, R. W. *Dislocation of the Semilunar Bone.*
10. *CAMPBELL, A. MACK. *Benign Tumors of the Stomach.*
11. HANDLEY, W. S. *Cancer of the Breast.*
12. MORSE, A. H. *Bilateral Congenital Caput Obstipum.*
13. BONX, H. K. *A Series of Liliform Appendices.*

1. Porter's conclusions from experimental and clinical data are that injections of boiling water into the thyroid gland should be substituted for the so-called medical treatment in patients with small thyroids and moderate symptoms of hyperthyroidism. This method is also peculiarly well adapted to the treatment of patients with moderate or severe symptoms and relatively small glands, and especially to cases wherein the hyperplasia is circumscribed. It is, therefore, well adapted to the treatment of patients who have had a lobectomy done and are still suffering from symptoms of hyperthyroidism with hypertrophy of the remaining lobe. Patients with large goiters and extreme symptoms of hyperthyroidism should be treated with the injections until they become safe surgical risks and then have the gland removed. Boiling water injections are not recommended in non-toxic goiter.

2. Clopton's article is beautifully illustrated and of distinct interest. It is a careful study.

3. Rodman, drawing from his own experience and that of other operators, is of the decided opinion that if the ulcer or ulcers are situated at or near the pylorus, as they are in about 80% of all cases, and the pyloric end of the stomach and proximal portion of the duodenum can be easily mobilized, pylorctomy, which gets rid of the existing ulcers, and prevents future ones to a large extent, removing as it does, four-fifths of the ulcer-bearing area, is certainly the operation of choice. The frequency with which hemorrhages, perforation and cancer, especially the latter, follow gastroenterostomy, show it to be wholly inadequate. Moreover, the radical operations of excision and pylorctomy are only slightly more dangerous, while far more beneficial in every way than gastroenterostomy.

5. Buford in an interesting article shows that in certain districts like Chicago, where sewage polluted water is used for drinking purposes, there is a frequent occurrence of goiter among children. This condition may also result from focal infections such as occur in tonsils, adenoids, and necrotic teeth.

9. Runyan states that many x-rays are often necessary to make a diagnosis of dislocated carpal semilunar. Closed reduction can be accomplished in about half the cases and should be tried irrespective of the length of time since the dislocation occurred. Open reduction is preferable to excision.

10. Campbell reviews the signs and symptoms of the different kinds of benign tumors of the stomach and describes a very interesting case of his own of papilloma of the stomach relieved by operation.

[F. H. R.]

THE LANCET.

DECEMBER 19, 1914.

1. *GOODALL, E. *The Croonian Lectures on Modern Aspects of Certain Problems in the Pathology of Mental Disorders. Lecture III.*
2. BUCKLEY, J. P. *A Method of Treating the Sac in the Radical Cure of Femoral Hernia.*
3. GEMMILL, W. *A Treatment for Prolapsus Ani in Young Children.*
4. FAIRLIE, H. P. *A Case of Delayed Chloroform Poisoning.*
5. MARK, L. *A Case of Acromegaly Two Hundred Years Ago. (Illustrated.)*
6. JUDSON, A. B. *Trigger Finger, Its Cause and Mechanism.*
7. BOWLBY, A. A. *The Treatment of Wounds in War.*
- S. NEWLAND-PEDLEY, F. *Our Army's Teeth.*

1. In the third Croonian Lecture, Goodall discusses variations of the leucocytal count in dementia paralytica. He then discusses the relation of ferments and antiferments, their increase and decrease in mental cases. He considers the influence of intercurrent diseases, and the effects of tuberculin, leucocyte extract, etc. [J. B. H.]

BRITISH MEDICAL JOURNAL.

DECEMBER 12, 1914.

1. ELIOTT, T. R. *Transient Paraplegia from Shell Explosives.*
2. CHEATLE, G. L. *Antiseptics in War.*
3. SHIPLEY, A. E. *Cockroaches. (Illustrated.)*
4. *OVEREND, W. *The Incipient Pulmonary Phthisis of School Children.*
5. SHAW, H. B. *The "Elderton" Method of Control in Testing the Value of New Tuberculin.*
6. WOODCOCK, H. DE C. *Artificial Pneumothorax.*
7. HARMER, W. D., ET AL. *Discussion on the Treatment of Inoperable Growths of the Throat and Nose.*
8. FRASER, J. S., ET AL. *Discussion on Oto-sclerosis.*
9. MUECKE, F. F. *Auditory Re-education.*
10. HILL, W., AND ELPHICK, G. J. F. *The Hemostatic Tonsil Guillotin. (Illustrated.)*
11. WATSON-WILLIAM, P. *The Intranasal Operative Treatment of Frontal Sinus Suppuration.*
12. KELLEY, A. B. *The Difficulties and Dangers of Exploratory Puncture of the Antrum of Highmore.*
13. GOGARTY, O. ST. J. *Latent Empyemata of the Nasal Accessory Sinuses.*

4. Overend presents a long and elaborate paper on incipient tuberculosis in school children from the point of view of the roentgenologist. He limits his discussion to children between the ages of 5 and 15, when the tuberculous process tends to become localized within the ducts and glands of the lymphatic system of the respiratory organs. This is practically the time of school life. He describes the radiological appearance of a healthy child's chest, and then takes up the anatomical and pathological considerations. He divides the bronchial glands into four classes: (a) tracheo-bronchial, (b) bifurcation, (c) hilum, and (d) pulmonary glands. The exact location of these glands and their pathological consideration, he describes.

He then discusses the channels of infection and dissemination; and among various possibilities, includes: 1. Caseation of glands. 2. Caseous pneumonia. 3. Eruption into a bronchus. 4. Eruption into a blood vessel. 5. Lymphatic dissemination.

The clinical symptoms and signs are at first obscure and indefinite, and due to a slow and chronic absorption of the products of bacillary metabolism and to the compression exercised upon adjoining structures by enlargement of the glands. He discusses these

signs and symptoms in detail. He devotes a very short space to the physical signs.

He then takes up the radiological examination of the patient. The radiologist, in his opinion, should endeavor to decide as to: 1, Presence or absence of disease. 2, Its activity or latency. 3, Whether it is open or closed. 4, The course of dissemination. (In the reviewer's opinion, the radiologist has a large task before him if he can correctly answer these last three questions.—J. B. H.) He presents a few illustrative cases.

The presence of the following five conditions he believes enough to strongly suspect enlarged bronchial glands, probably of tuberculous origin: 1, Intermitting sudden cough in the absence of cases of pertussis. 2, Wasting, pallor, and tiredness. 3, A sub-febrile temperature, rising occasionally to 100°. 4, The presence of capillary veins and a growth of hair over the upper thoracic spines. 5, The absence of any obvious disease. [J. B. H.]

DECEMBER 19, 1914.

1. *BOWLBY, A. *The Work of the "Clearing Hospitals" During the Past Six Weeks.*
2. ROGERS, L. *Permanganates in Sloughing and Tetanus-Infected Wounds.*
3. WILDEY, A. G. *Iodine as an Antiseptic in Joint Injuries.*
4. CATHCART, C. W. *A Simple Form of Portable Dressing Sterilizer.*
5. *BASSETT-SMITH, P. W., ET AL. *Discussion on Kala-azar or Parasitic Splenomegaly and Allied Infections.*
6. PHILLIPS, L. *Is Emetin Sufficient to Bring About a Radical Cure in Amoebiasis?*

1. Bowlby gives an interesting account of his work during the past three months with the British army in France. He describes in detail the functions of so-called "clearing hospitals." Such hospitals are essentially mobile units connected with the army. He describes the class of cases received and the general methods of treating the wounded.

5. Bassett-Smith presents an interesting description of kala-azar or parasitic splenomegaly and allied infections. His article is a general summary of these conditions, the methods of diagnosis employed, etc., although presenting nothing especially new. [J. B. H.]

THE PRACTITIONER.

DECEMBER, 1914.

1. GOODHART, J. F. *The Injection Treatment for Hemorrhoids.*
2. GALLOWAY, J. *Ointments—Their Therapeutic Value and Their Abuse.*
3. FREYER, P. J. *The Symptoms and Diagnosis of Stone in the Urinary Tract.*
4. McDONAGH, J. E. R. *Veneral Diseases as We See Them Today.*
5. *WYNTER, W. E. *The Diagnosis of Obscure Cases of Carcinoma.*
6. *HANDLEY, W. S. *A Legally Established Case of Traumatic Carcinoma of the Breast.*
7. *RIVIÈRE, C. *The Pneumothorax Treatment of Phthisis.*
8. BIGG, G. S. *War Diseases—Typhus Fever, Enteric Fever, Dysentery and Cholera.*
9. PIM, A. A. *Carbolic Acid in the Treatment of Tetanus.*
10. BARBER, H. W. *Urticaria Papulosa.*
11. *RICHARDS, D. T. *Some Lung Affections in Influenza.*
12. DRINKWATER, H. *The Longevity of Eminent Medical Men.*

5. Wynter discusses in a very general way some obscure cases of carcinoma in which the symptoms

were very obscure, chronic, and generalized. He discusses the importance of these general symptoms in the diagnosis of this condition.

6. Handley discusses the question of carcinoma of the breast following trauma, and presents evidence for and against any relationship between the trauma and a subsequently developed cancer.

7. Rivière in a very general way discusses the pneumothorax treatment of phthisis, and presents various illustrative cases. On the whole, and in suitable instances, he is very favorably inclined toward this method of treatment. Suitable cases, in his opinion, are those who have had a thorough course of sanatorium treatment, and who seem, in spite of this, to be going down hill.

11. Richards, in a most interesting article, discusses some lung affections in influenza, with particular reference to migrating apical pneumonia. In regard to this, he quotes Dr. West as stating, "Influenza stands in no special relation to phthisis. . . though it greatly reduces the resistance of a body to the pneumococcus, it does not seem to do so in any special way to the tubercle bacillus." Dr. Richards agrees with this point of view, and finds that in only rare instances has tuberculosis developed after an influenza process of this kind. He presents various interesting cases showing that pneumonia due to influenza, and other pulmonary processes due to the same cause, must be regarded as serious conditions. Although he presents no exact bacteriological evidence to show that these cases were all due to the influenza bacillus, he apparently includes in this term "influenza" a variety of infection which in this country, for lack of a better word, we are apt to call "grip." [J. B. H.]

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 42. OCTOBER 15, 1914.

1. VON BEHRING, E. *A Critical Analysis of the Theories in Regard to the Cause of Anaphylactic and Apotoxic Poisoning.*
2. MATHIAS and BLOHMKE. *The Pathology and Clinical Features of Human Anthrax.*
3. DRESEL, E. G. *The Etiology and Diagnosis of Actinomycosis.*
4. JULIUSBERGER. *Thiocol.*
5. CHRISTIAN. *The Organization of Hospital Trains.*

No. 43. OCTOBER 22, 1914.

1. *JOCHMANN. *Infectious Diseases of Wounds. 1. Tetanus.*
2. SCHUSTER. *Diseases of Marching Soldiers: Their Etiology, Prophylaxis, and Treatment.*
3. KUHN. *An Apparatus for the Injection of Local Anesthesia.*
4. MOMBURG. *A Substitute for Bandages During the War.*
5. BUSCHKE, A. *Veneral Diseases in War.*
6. CAHEN, F. *A New Method for Transplantation of Nerves.*
7. *EPSTEIN, H. *Foligan "Henning."*
8. BREUER, G. *A New Method of Packing and Labeling Negative Paper for Roentgen Exposure.*
9. MUCH, H. *From an Egyptian Journey.*
10. SCHWALBE, J. *A Letter from Ernst v. Bergmann from the Turko-Russian War of 1877.*
11. *SCHWALBE, J. *Salvarsan "Made in England."*

1. Jochmann reviews the history of tetanus, its mode of infection, its clinical course and its treatment. For the early laboratory diagnosis he advocates the injection of suspected material mixed with sterile pumice stone under the skin at the root of the tail of mice. The pumice acts as a foreign body and attracts the leucocytes, and usual pus organisms. In this way the oxygen is used up, anaerobic conditions are produced, and the tetanus organisms grow rapidly,

producing characteristic symptoms in two or three days.

For the cultural diagnosis of the disease, Jochmann uses for medium grape-sugar bouillon. The culture is made according to ordinary technic, and the surface is covered with sterile oil. The culture is heated to 70° C., which kills off any non-spore-bearing organisms. After this, the tetanus organisms grow at 37° in pure culture.

In the treatment of tetanus, Jochmann places great reliance upon active serum treatment. He gives 100 antitoxin units intraspinally every day or two as long as convulsions are present. At the same time he injects intramuscularly, near the wound, 100 units daily, and powders the wound with dried antitoxic serum. In this way he hopes to neutralize as much toxin as possible. Finally, on the first day of treatment, he injects 100 units intravenously.

Such active treatment has not had the brilliant results which follow the use of anti-diphtheritic serum. Nevertheless, Jochmann believes that the more energetic the anti-tetanic treatment is, and the earlier in the disease it is begun, so much more favorable are the results.

Jochmann mentions the magnesium sulphate treatment, but has had too little personal experience with it for a definite opinion as to its practical value.

For symptomatic treatment, Jochmann advises morphia and chloral in large doses and either alone or combined. The patients must be well fed. When unable to eat by mouth they must be fed by rectum or subcutaneously. For the latter purpose, Jochmann has given sterile oil in as large doses as 100 grams.

7. Foligan "Henning" is a preparation of powdered orange leaves made by the firm of Henning. Epstein has used it as a sedative in a series of cases. On the whole he feels that Foligan is valuable, yet he has met with several cases in which the drug appeared to have no action.

11. Schwalbe writes a bitter article commenting upon the fact that Burroughs, Wellcome and Company are attempting to obtain rights to sell their own new products under the names of salvarsan and neosalvarsan, thus encroaching upon the patents of Höchst. Schwalbe considers that such action is unjustifiable even in war, but believes that if the London firm undertakes the manufacture of salvarsan, the injuries produced by the new drug will produce a new "English" disease, and will leave a lasting monument in the English literature.

[R. F.]

No. 44. OCTOBER 29, 1914.

1. *CZERNY, V. *The Treatment of Tetanus.*
2. FALK, A. *Subcutaneous Injections of Magnesium for the Treatment of Tetanus.*
3. SCIMMIDT, A. *Gun-shot Wounds of the Lung.*
4. LEDDERHOSE, G. *The Economical and Rapid Treatment of Wounds.*
5. *FRIEDRICH, E. P. *Aural Problems in War Surgery.*
6. KÜMMEL, W. *Ear Diseases in the Field.*
7. STEIN, A. E. *Medical Photography.*

1. Czerny mentions the conditions under which tetanus will develop. Bullets rarely produce the disease, but more favorable wounds are those caused by shrapnel when large skin areas are laid bare. Prophylaxis is most important. Czerny advises prophylactic serum in any doubtful case. The best treatment is antitoxin, given either intraspinally, endoneurally, or intravenously. The most effective drugs to alleviate symptoms are morphia, chloral and paraldehyde.

5. Friedrich discusses in a general way the injuries to the ear which he has seen during the war and describes their treatment. Injuries to the external ear with indirect injury to the drum are common. One of the frequent diseases of the external ear

also is furunculosis. The middle ear may occasionally be wounded by stabbing, but more often by splinters of shot or by wounds of the skull. Acute otitis media develops among troops from time to time sporadically. The internal ear can be injured directly by bullets or stab wounds, and indirectly by detonation. The treatment is largely symptomatic, since it is difficult to treat these diseases satisfactorily at the front. [R. F.]

No. 26. NOVEMBER 12, 1914.

1. KOCHER, T. *The Treatment of Severe Tetanus.*
2. v. BEHRING, E. *The Use of Anti-tetanic Serum.*
3. *KROMAYER. *X-ray and Light Treatment to Hasten the Healing of Gunshot Wounds.*
4. STACHOW AND WIERWOBOWSKI. *First Impressions of War Surgery.*
5. STREBEL, J. *Anosmia and Traumatic Enophthalmos.*
6. *ENGEL. *Urinary Excretion in Infants.*
7. SCHNÉE, A. *Further Comments on the Treatment of Diabetes Mellitus with Ferments.*
8. ROERDANSZ, W. *A Simple and Complete Method for Counting Blood Corpuscles.*
9. ADAM. *The German, Austrian, French, Russian, and English Conditions of Military Sanitation.*

3. Since x-ray and sunlight stimulate the growth of epithelium so definitely in chronic ulcerative processes, Kromayer has used them for the same purpose in the treatment of wounds which present large ulcerated surfaces. He advocates small dosage of x-rays and states that any x-ray burn of the skin must be avoided. In using sunlight or carbon as a substitute, enough exposure is given to produce a slight erythema. On the whole, Kromayer believes that much time can be saved in the healing of wounds by the proper use of these rays.

6. Engel has undertaken to determine the amount of urine excreted by normal infants, the frequency of urination and how large are the individual portions excreted. The method of collecting the specimens consisted in connecting to the urinals used, electrodes, which in turn were attached to a bell. Thus when the subject urinated, a nurse was called, who recorded the time and the amount of urine. The amount of urine depended on the fluid intake. If an infant drinks 800 c.c. of liquid, normally about 500 c.c. of urine are excreted. An infant urinates between 20 and 30 times in 24 hours. Engel found that during periods of quiet, much less urine was excreted than during periods of muscular activity. Thus, when the child slept there would be no urine for two or three hours, while if the child were awake it urinated every few minutes. Finally, Engel found that the average amount of urine obtained at each emptying of the bladder was between 12 and 18 c.c., although in isolated cases 70 to 90 c.c. were recovered. The amount of individual specimens depended closely on the degree of muscular activity. [R. F.]

IL POLICLINICO.

DECEMBER, 1914.

SURGICAL SECTION.

1. *DESDERI, P., AND SERAFINI, G. *Bacteriologic Researches on Bone in the Cadaver.*
2. MOSTI, R. *Surgical Intervention in Paralysis of the Radial Nerve Following Fractures of the Humerus.*
3. BRANCATI, R. *The Ulcerative Gastro-Intestinal Effects of Experimental Resection of the Lumbar Sympathetic. (Conclusion.)*
4. BEVACQUA, A. *Spontaneous Perirenal Hematoma. (To be continued.)*

1. From Pagliani's hygienic institute at the royal university of Turin, the authors report results of cul-

al experiments on the bones of 28 recently deceased human subjects. Of these, 15 were found completely sterile, in 2 the streptococcus was found and in 11 the staphylococcus. The subject is of importance in relation to homo-necro-transplantation of bone tissue.

[R. M. G.]

Miscellany.

REGULATIONS OF STATE DEPARTMENT OF HEALTH.

At the meeting of the Public Health Council of the State Department of Health on January 9, 1915, the following regulations were adopted, governing the appointment and promotion of district health officers, to be appointed within the provisions of Chapter 792, of the Acts of 1914.

1 Grades of District Health Officers. There shall be four grades of District Health Officers, viz: A, B, C, and D.

2 District Health Officers appointed only to Grade D. Candidates for the position of District Health Officer, after passing a successful examination, shall be eligible for appointment to Grade D, except in the cases specified in Section 14.

3 Form of application for appointment. Candidates for the position of District Health Officer must make application addressed to the Commissioner of Health in their own handwriting, asking permission to appear before the Board of Examiners. Candidates shall state their age, date and place of birth, present legal residence, names of colleges or institutions of learning of which they are graduates, date of graduation, and shall furnish testimonials as to their professional experience and moral character.

4 Age limit. No candidate will be eligible to appear before a Board of Examiners whose age is less than twenty-three years or more than thirty-six, except in the cases cited in Section 14.

5 Professional requirements. Candidates shall be graduates of an incorporated medical school or shall have had at least five years' experience in public health work and sanitary science.

6 Citizenship. All candidates must be citizens of the United States, and preference in appointment shall be given to residents of Massachusetts.

7 Physical examination. Candidates for appointment must pass a satisfactory physical examination before a Board of Examiners except as provided in Section 14.

8 Board of Examiners. The Board of Examiners shall consist of three or more members. These members shall be selected by the Commissioner of Health from the Public Health Council or other officials of the State Department of Health.

9 Scope of examination. All examinations of candidates for appointment as District Health Officers shall be conducted by a Board of Examiners and the examination shall include a physical examination and such oral, written and practical tests as the Board deems necessary in the subjects outlined in the succeeding sections. Experience and fitness shall also be rated by the Board of Examiners.

10 Subjects for written examination. All candidates for appointment must pass a satisfactory written examination in Communicable Diseases, Hygiene and Sanitation, Preventive Medicine, Vital Statistics, Pathology and Bacteriology.

11 Compensation. The compensation of District Health Officers shall be as follows:

Grade A.	\$3500.00
Grade B.	3000.00
Grade C.	2500.00
Grade D.	2000.00

12 When promoted. After five years' service in any grade the District Health Officer is entitled to examination to determine his eligibility for promotion to the next higher grade.

13 Examinations for promotion. Examinations for promotion shall be conducted by a Board of Examiners, who shall take into account the efficiency record of the candidate as well as his professional and physical fitness. Failing first examination a District Health Officer may be given a second examination after one year. Failing two successive examinations, such a District Health Officer shall be dropped from the rolls.

14 Exemptions in favor of candidates now in the service. Candidates for appointment as District Health Officers who are now (January, 1915) State Inspectors of Health in the service of the State Department of Health shall be exempt from certain provisions of these regulations, as follows:

- The age limit of thirty-six years is waived.
- If successful in passing the entrance examination they shall be eligible for appointment to Grade C, provided they have had five years' service as State Inspector of Health of the State Board of Health.
- They shall be given credit for service as State Inspector of Health of the State Board of Health in excess of five years in fixing the date of their eligibility for promotion to Grade B.
- If successful in passing the entrance examination with distinction they shall be eligible for appointment to Grade B and shall be eligible for promotion to Grade A after two years' service in Grade B.

15 Tenure of office. A District Health Officer may be removed from office by the Commissioner of Health because of failure to pass two successive examinations for promotion, or because of gross misconduct or inefficiency, but only after the accused officer has been furnished with a

copy of the charge made against him and given a hearing thereon by the Public Health Council.

It was voted to fix the date of the examination for Tuesday, February 16, and Wednesday, February 17, 1915, at 9.00 a. m., at the office of the State Department of Health, and it was further voted to require all applications for examination to be received in the office of the State Department of Health on or before February 10, 1915.

A. J. McLAUGHLIN, M.D.
Commissioner of Health.

THE AMBULANCE CONSTRUCTION COMMISSION.

THE present European war is the first in which field motor-ambulances have been extensively used. It was inevitable that many defects should be found in existing types, and in various quarters experts began to ask whether something could not be done to standardize the patterns and to improve the type. At the instance of Mr. Henry S. Wellcome, the founder of the Wellcome Bureau of Scientific Research, a Commission has been formed, and the names of members show at once that the matter is regarded as of first importance by those most intimately connected with the welfare of the wounded soldier.

Sir Frederick Treves, whose long experience and distinguished service specially fit him for the task, has consented to be the Chairman. The Admiralty is represented by the Director General of the Medical Department, R. N., while the Quarter Master General to the Forces and the Acting Director General, Army Medical Service, represent the War Office. The British Red Cross Society is, of course, represented by Sir Frederick Treves, and the St. John Ambulance Association by Sir Claude Macdonald and Sir John Furley. The remaining members are all experts. This Commission will first and foremost act as a judging committee for the award of prizes of the value of £2000 provided by the Wellcome Bureau of Scientific Research. These prizes are offered for the best designs of an ambulance-body which shall fit a standard pattern motor chassis for field motor ambulances. The last day for the receipt of competing designs is June 30, 1915. It is hoped that the competition will bring in a number of ingenious designs, from which the ideal field ambulance body will be evolved.

It may be asked why the competition is restricted to designs for a body and not for a complete ambulance including a chassis. The reason is that a chassis takes much longer to build than a body, and that, when war breaks out, it is impossible to get at short notice anything like a sufficient number of any one type of chassis.

On the other hand, a standardized body to fit any chassis of approved dimensions can be constructed in numbers at comparatively short notice. And a perfected body is badly wanted to ensure complete comfort for the wounded.

It is hoped that the information obtained by the competition, and in other ways, will be published in some permanent form, available for future reference. Probably in addition to one design of special excellence, there will be submitted various ingenious suggestions which may be incorporated in the pattern design approved by the Commission. For these, a portion of the prize-money has been set apart. The first prize is of one thousand pounds, the second of five hundred, and the third of three hundred pounds. All details of conditions may be obtained from the Secretary, the Ambulance Construction Commission, 10 Henrietta Street, Cavendish Square, London, W. The competition is open to citizens of all nations.

INSANITY IN MASSACHUSETTS.

THE recently published annual report of the Massachusetts State Board of Insanity records the work of that body and of the hospitals under its charge during the past year. The report shows that one out of every 271 persons in this Commonwealth is insane.

"The insane being cared for in state institutions number 13,497, an increase for the year of 396. The board has under its care 17,386 persons, of whom 14,122 are insane, 2513 feeble-minded and 624 epileptic.

"The capacity of the institutions is now 13,971, and this includes new accommodations for patients, which have recently become available. Notwithstanding this addition, there is, at the present time, an overcrowding of 231. As the Legislature of 1914 granted no appropriations for patients, there are no new buildings in the process of construction. It will thus be seen that, provided the increase for the coming year is at least 442—the increase of the past year—there will be, at the close of 1915, an overcrowding of 633, while any appropriations granted by the Legislature of 1915 will not be available until from one and one-half to two years later, when the overcrowding will be still greater. It is, therefore, necessary that appropriations for accommodations for 525 patients and 254 nurses planned for this year be granted."

"An increase of 274 this year in the number of feeble-minded being cared for is reported. The board says that immediate provision should be made for the feeble-minded because of the large number of this class of persons in the state.

"Three recommendations are made by the board: (1) To make the Foxboro State Hospital a receiving hospital for the insane, (2) to change the character of the Worcester State

Asylum to a receiving hospital, and to change its name to the Grafton State Hospital, and (3) to purchase land as an adjunct to the Northampton State Hospital so as to provide for the insane in western Massachusetts."

The report also recommends the following methods in treating mental deviates:—

"1. Examine all defective delinquents in all state institutions.

"2. Systematize the work so that the personal history, the mental state of every person confined and tendency to crime are recorded.

"3. Make every insane person useful during his detention.

"4. Increase the industrial work of every hospital with a view at some time to make all insane institutions in the state self-supporting.

"5. Make it possible to have more receiving hospitals. The only authorized receiving hospital at present is at Medfield. It is proposed to have Worcester and Foxboro also as receiving hospitals."

EXAMINATION OF CANDIDATES FOR ASSISTANT SURGEON.

UNITED STATES PUBLIC HEALTH SERVICE.

Boards of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 B Street, S.E., Washington, D. C., and at the Marine Hospitals of Boston, Mass.; New York, N. Y.; Chicago, Ill.; St. Louis, Mo.; Louisville, Ky.; New Orleans, La., and San Francisco, Cal., on Monday, March 8, 1915, at 10 A.M., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service, when applications for examination at these stations are received in the Bureau.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service in hospitals for the insane or experience in the detection of mental diseases will be considered and credited in the examination. Candidates must have had one year's hospital experience or two years' professional work.

Assistant surgeons receive \$2000, passed assistant surgeons \$2400, surgeons \$3000, senior surgeons \$3500, and assistant surgeon generals \$4000 a year. When quarters are not provided, commutation at the rate of \$30, \$40, and \$50 a month, according to the grade, is allowed. All grades receive longevity pay, 10 per cent, in addition to the regular salary for every five years up to 40 per cent. after twenty years' service. The tenure of office is permanent. Officers traveling under orders are allowed actual expenses. An invitation to appear before the board of examiners, address "Surgeon-General, Public Health Service, Washington, D. C."

BELGIAN PHYSICIANS' RELIEF FUND.

Report of the Treasurer of the Committee of American Physicians for the aid of the Belgian profession, for the week ending January 23, 1915.

Diplomatic arrangements have just been completed whereby drugs and instruments for civilian physicians may be sent into Belgium. Recent advices from Dr.

Herbert Spencer of London show that our Belgian colleagues are literally starving.

Three hundred additional boxes of food have been purchased at a cost of \$660.00.

Contributions:

Dr. W. A. Coventry, Duluth, Minn.....	\$ 10.00
Dr. A. William Reggio, Boston, Mass.....	25.00
Dr. Edward B. Heckel, Pittsburg, Pa.....	25.00
Dr. T. R. Williams, Punxsutawney, Pa.....	10.00
Dr. J. Knox Simpson, Jacksonville, Fla.....	10.00
Sonoma Co. Medical Society, Sebastopol, Cal..	50.00
Anonymous—E., Pittsburg, Pa.....	10.00
Dr. A. B. Hirsh, Philadelphia, Pa.....	5.00
Dr. Henry Eastman, Pittsburg, Pa.....	10.00
Dr. H. S. Stenansland, Syracuse, N. Y.....	2.00
Washington Co. Medical So., Marietta, Ohio...	25.00
Dr. Lewis S. Pilcher, Brooklyn, N. Y.....	25.00
Dr. M. Iverson, Stoughton, Wis.....	5.00
Dr. A. H. Traver, Albany, N. Y.....	5.00
Dr. Carl B. Drake, St. Paul, Minn.....	5.00
Dr. Leonard Freeman, Denver, Colo.....	5.00
Dr. Howard C. Taylor, New York, N. Y.....	25.00
Dr. Walter F. Donaldson, Pittsburg, Pa.....	5.00
Deer Lodge Co. Medical So., Anaconda, Mont...	75.00
Dr. W. S. Zimmerman, Spartansburg, S. C....	10.00
Dr. H. MacVicker Smith, Pittsburg, Pa.....	5.00
Dr. Ethel D. Brown, New York, N. Y.....	5.00
Dr. Brown Pusey, Chicago, Ill.....	25.00

Total\$377.00
Previously reported receipts.....\$1414.00

Total receipts.....\$1791.00
Previously reported disbursements...\$990.00
Disbursements week ending Jan. 23.. 660.00

Total disbursements.....\$1650.00
Balance\$ 141.00

F. F. SIMPSON, M.D., *Treasurer.*

NOTICES.

Physicians visiting the city will be cordially welcomed at the following clinics on the days and hours specified.

BOSTON CITY HOSPITAL.—After January 1, 1915, public operations will be performed in the Surgical Amphitheatre each week, on Thursdays, Fridays and Saturdays, at 10 o'clock.

Thursday: First Surgical Service. Dr. Blake
Friday. Third Surgical Service. Dr. Nichols, and
Fourth Surgical (G-U) Service, Dr. Thorndike.

Saturday: Second Surgical Service. Dr. Lund.
Notice of these operations will be sent to anyone expressing his desire to receive it.

CARNEY HOSPITAL.—Dr. Bottomley and Dr. Mahoney will hold an operative surgical clinic every Wednesday at 9 A.M., and at the same hour on the same day Dr. W. R. MacAusland will hold an orthopedic clinic. All physicians are welcome to attend.

MASSACHUSETTS GENERAL HOSPITAL.—1. A surgical clinic Friday, at 9 in the out-patient amphitheatre. 2. Operations in the Bigelow amphitheatre Saturdays from 10 to 1. 3. Operations in the Surgical Building except Sunday, from 9 to 1. 4. Daily surgical ward visits at which visiting physicians will be welcome. 5. Clinic in medicine, Monday and Thursday at 9, by Dr. D. L. Edsall. 6. Clinic in neurology, Tuesday at 9, by Dr. E. W. Taylor. 7. Clinic in medicine and pathology Tuesdays at 12, by Drs. R. C. and H. Cabot and O. Richardson. 8. Clinic in dermatology, Thursday at 9, by Dr. C. J. White.

PETER BENT BRIGHAM HOSPITAL.—Physicians visiting the city will always be cordially welcomed at the Peter Bent Brigham Hospital.

The medical visit takes place regularly every morning beginning at 10 o'clock.

Operations are usually going on throughout the forenoon in the surgical amphitheatre.

The surgical clinic is held in the clinical amphitheatre on Wednesdays at 12.30 P.M.

The medical clinic is held in the clinical amphitheatre on Mondays at 12.30 P.M.

The clinico-pathological demonstration is held in the clinical amphitheatre on Fridays at 3.30 P.M.

SOCIETY NOTICE.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY.—Owing to a change in the program of our meetings, the next meeting of the Middlesex South District will be held at the Massachusetts General Hospital, Out-Patient Amphitheatre, on Wednesday, Feb. 10, 1915, at 12 o'clock noon. Dr. Richard C. Cabot of Boston will speak on "Some Puzzling Cases Before and After Death."

LYMAN S. HAPGOOD, M.D., *Secretary*.

RECENT DEATHS.

DR. JAMES M. BODINE, who died on January 25, at Louisville, Ky., was born in 1830. He was for many years dean of the medical department of the University of Louisville.

DR. HARRY CLIFTON BOUTELLE, who died on January 24 of pneumonia at Danvers, Mass., was born in Fitchburg on June 21, 1875. He received the degree of M.D. from the Harvard Medical School in 1899, settled at first in the practise of his profession at Boston where he served for several years as a school physician, and removed to Danvers in 1902. He was a member of the American Medical Association, a Fellow of The Massachusetts Medical Society and a member of the Essex District Medical Society. He is survived by his widow and by one son. At the time of his death he was a Councillor of The Massachusetts Medical Society from the Essex South District.

DR. MAX HEYDE, a docent for surgery at the University of Marburg, Germany, has died of typhoid fever contracted while serving in a medical capacity with the German army.

DR. WILLIAM H. LANGDON, who died in Wayland, Mass., on January 26, was born in Brookline, Mass., in 1871. He graduated from Tufts Dental School in 1896 and since that time has practised his profession in Boston.

DR. HERBERT JAMES PRATT, who died at Plymouth, Mass., on January 21, was born in Medford, Mass., in 1842. He received the degree of A.B. from Harvard in 1863 and that of M.D. in 1868. He practised his profession for ten years in Minneapolis, Minn., and subsequently had devoted himself extensively to travel and study abroad. He was unmarried.

DR. BENJAMIN SHARP, who died on January 21 at Beaufort, N. C., was born in Germantown, Pa., on November 1, 1858. After studying at Swarthmore College, he received the degree of M.D. from the University of Pennsylvania and subsequently studied abroad in Bavaria, Berlin, Leipzig and Naples.

In 1883 Dr. Sharp became professor of invertebrate zoölogy at the Academy of Natural Sciences, Philadelphia, and two years later became professor of zoölogy at the University of Pennsylvania. He was a life member and corresponding secretary of the Academy of Natural Sciences, for which he made several expeditions, collecting in the Caribbean Islands in the winter of 1888-9, and in the Hawaiian Islands in the summer of 1893. He also made an expedition to Alaska and Siberia on the United States revenue cutter *Bear*. He was a member of the American Philosophical Society, Boston Society of Natural History, and was vice-president of the Nantucket Historical Association. Dr. Sharp served in the Massachusetts Legislature from 1910 to 1913 as representative from Nantucket. Dr. Sharp had been, at various times, a resident of Brookline and Nantucket, Mass. In 1901 he acted as zoölogist of Commander Peary's first Arctic expedition.

DR. SIR ROBERT SIMON, professor of therapeutics at the University of Birmingham, England, has died recently at the age of 84.

DR. CLINTON WAGNER, first professor of laryngology and rhinology in the New York Post-Graduate Hospital and Medical School, has recently died in Switzerland at the age of 74.

DR. LEVI FRANCIS WARNER, who died on January 20 in New York City was born at South Glastonbury, Conn., in 1864. He received the degree of A.B. from Williams College in 1885 and that of M.D. from the Columbia University Medical School in 1889. He was for eight years a member of the New York Board of Police Surgeons, physician-in-chief to the New York Dispensary and visiting physician to St. Francis Hospital. He was a member of the New York County Medical Society and of the St. Luke's Hospital Alumni Association.

BOOKS AND PAMPHLETS RECEIVED.

Text Book of Surgical Operations, by Prof. Fedor Krause, M.D. Translated and edited by Albert Ehrenfried, M.D. Vol. I. Rebman Company. New York. 1915.

Autogenous Serum in the Treatment of Psoriasis, by Howard Fox, M.D. Reprint.

Harvard University Catalogue. 1914-1915.

International Clinic Week at the New York Polytechnic Medical School and Hospital during the International Surgical Congress, April, 1914.

The Routine Administration of Ether in Measured Dosage, by Albert H. Miller, M.D.

Physical Examination of Workers, by J. W. Schereschewsky. Reprint No. 234. Public Health Report.

The Nervous System and Its Conservation, by Percy Goldthwait Stiles. W. B. Saunders Co.

Transactions of the American Surgical Society. Vol. 32.

Infection, Immunity and Specific Therapy, by John A. Kolmer, M.D. W. B. Saunders Co. 1915.

Dissection Methods and Guides, by David Gregg Nethany. W. B. Saunders Co. 1915.

Diagnostic and Therapeutic Technic, by Albert S. Morrow. W. B. Saunders Co. 1915.

A Laboratory Manual and Text-book of Embryology, by Charles W. Prentiss. W. B. Saunders Co. 1915.

The Boston Medical and Surgical Journal

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Original Articles.

VENEREAL DISEASE AND PROSTITUTION.*

BY WALTER D. BIBERBACH, M.D., WORCESTER, MASS.

IN 160 A.D. Galen recognized a disease affecting the urethral tract and named this disease "gonorrhea," which he believed was an involuntary escape of semen. Lacroix has stated that during the Middle Ages, Paris quartered its prostitutes in a quarter known as the clavier section, and it was from this locality that the term "clap" originated. So today we still have the words "clap" and "gonorrhea" which are used interchangeably by many physicians. From these two words there has developed a number of vulgar names which are used by the laity when referring to gonorrhea, such as "the morning drop," "nipper" and "a dose".

Although there are no means of positively identifying gonorrhea in the early ages, it is almost certain that the disease can be traced back to the earliest records of human life.

In 1530 Fracastor, an Italian physician, published a poem entitled, "Syphilis sive Morbus Gallicus." In this poem he describes the pagan gods and assumes that a shepherd, whom he terms Syphilus, had addressed offensive words to Apollo. The god in order to punish him struck him with a disease of the genital organs. The inhabitants of the country afterwards call this the Disease of Syphilus, or Syphilis. Opinions differ as to the source from which Fracastor

got the name, but the most probable origin according to Buret is *σύν* with and *φιλία* loving.

The date of origin is much debated, some dating it from 1494 when it was said to have been introduced into Europe from America by the crew who sailed with Christopher Columbus, in his search for a short route to the West Indies. This is disproved by the multitude of names given to it at the time of the great epidemic of the 15th century, for, had the disease been imported from America it probably would have been called "Mal Américain." Others claim that syphilis originated in Europe at the siege of Naples in 1493, but this cannot be proved, as it will be shown that no doubt the disease was present long before this time. The probable truth is that syphilis was universal, but not in the same degree in all countries or at all periods. It was also little understood. Syphilis is probably as old as man. The evidence in proof of this view we shall now proceed to consider.

It is impossible to fix a date as a limit to the prehistoric period, for at one and the same time we find certain nations cultivating science and writing treatises on medicine, while certain others were in a state of barbarity. At Solutre in the department of Saône-et-Loire is a prehistoric spot where human remains have been found, apparently of an Asiatic race. Here a woman's skeleton was discovered with nodes on the tibia, which were pronounced by Virehow and Parrot to be syphilitic. Parrot has found traces of congenital syphilitic bone disease in five skulls of Peruvian infants. This shows that syphilis existed in Peru before the Spanish Conquest. Jourdanet relates the history of syphilis in Mexico before the Conquest, and refers to the

* Read before the Worcester District Medical Society, Nov. 11, 1914.

opinion of Captain Cook that the disease existed in Oceania.

Syphilis existed among the Chinese five thousand years ago. In 1863 Dabry published a book on syphilis among the Chinese. He translated the manuscript which escaped the holocaust commanded by the Emperor Hoang-ty, who collected all the writings which existed. From these we learn through Dabry that the Chinese treated syphilis by mercurial inunctions, they also recognized scabies and treated it with sulphur. They understood venereal diseases better than they have been known since up to the time of Ricord. They knew the duality of chancres, which was only established in our time by Ricord; and also that syphilis and gonorrhea were distinct diseases. This quotation from Dabry's book is given by Buret, showing somewhat the extent of their knowledge: "It happens sometimes that, several months after the cure of a venereal sore the individual suffers suddenly from headache and fever, pains in the bones, and vertigo; a short time afterwards small copper-red spots appear on the face, which increase gradually. The face becomes bloated, chiefly the nose, the speech becomes difficult and there are pains and itching of the throat. The spots change to small purple nodules as large as peas which discharge a thick and foetid liquid; the body soon becomes covered with spots and nodules of the same nature; mucus flows from the nose and the breath is foul." There is also mention of condylomata, ulceration of the tonsils, and pigmentary syphilides of the neck. It is also stated that the disease may be transmitted to new-born infants. If we are astonished at this knowledge, we must remember that the Chinese invented gun powder when Europe was using the bow and arrow. Syphilis was apparently known to the Japanese but the records are very scanty.

Thus above, in a somewhat sketchy manner I have tried to show that gonorrhea and syphilis both have existed from the very earliest history of the human race. Passing along to the more enlightened ages we note that as civilization progressed so did the knowledge of gonorrhea and syphilis. After the Roman conquests the city of Rome, with its enormous population, settled down to a life of peace, luxury and vice, such as heretofore had been unknown in the world's history. As this time prostitution was rife. It was a common occurrence to see the nobles and men of power leave their palaces to spend the night in the brothels of the city. Some Romans even went so far as to maintain a brothel in their own palaces. If such form of vice was found among the wealthy there is no doubt but that similar conditions existed among the poor, but in a lower and more sordid scale. Rome provided for public baths which were used by men and women, boys and girls, who bathed in a state of nudity, and often these public baths were nothing more than houses of assignation. The shampooers and those who massaged the bathers

were members of the lowest class. Sometimes the interior of a private citizen's house had its walls decorated with lewd pictures and lascivious frescoes. There is little wonder that people at this time lead such lives when we find Nero, who was supposed to be their leader, a habitual frequenter of houses of prostitution and not only that, he dined in public with hordes of prostitutes. With such vice venereal disease must surely have thrived. The lives lead by the Greeks at this time were no better than that of the Romans and as a consequence venereal disease must have been prevalent among them to a large extent.

In the fifteenth chapter of Leviticus Moses warned the children of Israel of the dangers of a disease which was undoubtedly gonorrhea. He must have noted an alarming increase in its spread among his race, for in the Book of Leviticus he laid down definite sanitary and police regulations for its prevention. The historian Josephus relates how the Jews on their way to Canaan contracted venereal diseases, and as a result many of their own race were stricken with them. Thus gonorrhea and syphilis played an important rôle in the etiology of diseases of men and women in these ancient times.

The above must be true for at this time the Israelites were instructed to "put out of camp every leper, and every one that hath an issue." Probably many who were termed lepers were simply advanced cases of syphilis showing terrible tertiary lesions following faulty treatment. As for the interpretation of the word "issue," this is understood by many as referring to gonorrhea. However, some authorities believe that the term does not refer to a venereal disease.

Passing down through history we find that venereal disease was becoming so prevalent that the cause and treatment were given more consideration. In the fourteenth century the infectious nature of gonorrhea and the mode of its contagiousness were pretty definitely recognized. People became alarmed and ordered police regulations for its control, and medical supervision of houses of prostitution was inaugurated. In 1497 James IV issued a celebrated proclamation banishing all the infected from the City of Edinburgh. Henry VI placed police regulation in force, ordering all venereal patients from public hospitals, and required them to be strictly guarded at night. No wonder such stringent rules were taken, for in the fifteenth century all Europe was swept by an epidemic of syphilis, so severe that many lives were lost from this dreaded disease.

Up to this time you will note that very little was done to prevent the spread of gonorrhea or syphilis. When Rome was in her glory and prostitution flourished rife these diseases occupied very little space in medical literature. The Roman physician did not generally care to consider these diseases, believing that they were beneath his dignity. From what can be learned the Roman physicians refused to treat venereal

disease, and as a consequence the rich relied upon their slave doctors to care for them when suffering from either gonorrhea or syphilis. As for the poor it is hard to say what became of them.*

At the end of the fifteenth century and the beginning of the sixteenth century venereal disease had become such an important factor in the health of the public at large that the physicians began to study the cause and treatment more closely. Gonorrhea, especially in England, at that time became very prevalent and a large per cent. of prostitutes were infected. Both syphilis and gonorrhea, however, were somewhat confused, the physicians believing the latter disease a symptom of the former, and treated it as they did syphilis, generally with mercury. However, more rational views regarding the etiology of syphilis and gonorrhea were held by certain diagnosticians who carefully studied these diseases, and in 1554, P. Haschard wrote warnings against treating gonorrhea with mercury, stating that he believed the diseases were distinct and separate.

In 1750 the profession began to recognize that ophthalmia in the infant was associated with leucorrhea in the mother. From this it was shown that a mother suffering from gonorrhea at the time of giving birth to her child would transmit the infection from the vaginal tract to the infant's eyes. Discussions and differences of opinion as to the separate identity of these two diseases continued until the eighteenth century when it was generally recognized by all physicians that gonorrhea and syphilis were two different diseases. A little later, in 1767, this general agreement was again torn asunder, for Sir John Hunter offered himself as a sacrifice for the cause under dispute. He made two punctures in his penis with pus taken from a supposed case of gonorrhea. As a result he developed syphilis, having the secondary lesions such as mucous patches on the tonsils, together with a general glandular enlargement. As a result of Hunter's experiment came the conclusion that syphilis developed from gonorrhea. The medical profession here again changed their minds and went back to the old theory that gonorrhea and syphilis were the same disease, one developing from the other. This we would naturally expect, for Hunter was at this time one of the leading physicians and surgeons in Europe and his upright opinion carried great weight. It has been mentioned that probably the pus with which Hunter inoculated himself was taken from a patient suffering from a urethral chancre which was mistaken at that time for gonorrhea. Many investigators, however, did not stop with this report but continued the question by means of original research. Hale and Bell, from their work, taught that gonorrhea and syphilis were

different diseases. Bell showed by inoculating the urethra in two physicians that while they developed gonorrhea they did not contract syphilis. This experiment stimulated other investigators and in 1811 Hernandez inoculated seventeen convicts with gonorrheal pus, and all developed gonorrhea, not one contracting syphilis.

This experiment carried great weight with the profession in general but a new dispute now arose. Caron, Devergie and Desruelles taught that gonorrhea was not caused by any specific virus and the German believed that it was a general infection. Thus opinion was left in a much unsettled state. In 1837 Phillippe Ricord, a physician with a large experience, made 667 inoculations of gonorrheal pus in the urethras of different individuals and in not a single case did syphilis develop. These experiments of Ricord's and the brilliant manner in which he presented his findings definitely established the separate identity of gonorrhea and syphilis.

About this time there came on the scene another generation of men such as Koch, Pasteur and others who began to extend their scientific study to the laboratory in the hope of finding the cause of these diseases and ending this lengthy discussion. After much laboratory work by many investigators, Albert Neisser on July 12, 1879, described a micrococcus that he stated was the cause of gonorrhea. His conclusions were drawn from the study of thirty-five cases. The micrococcus was also demonstrated in seven cases of purulent ophthalmia. He later demonstrated these micrococci by employing Koch's method, thereby establishing without a doubt that gonorrhea was a separate disease and was caused by the gonococcus.

Later with advanced laboratory methods established by the Germans many investigators gave us our clear knowledge of gonorrhea and the pathological conditions produced by this disease. With the question of gonorrhea clearly settled in their minds the profession now determined to find the cause of syphilis, and in 1905 Schaudinn and Hoffmann discovered the spirocheta pallida, an organism found in secretions from syphilitic sores, that is now recognized as the cause of this dreaded disease.

Now that we have definitely settled the cause of both gonorrhea and syphilis let us consider the prevalence of these diseases. Neisser states that with the exception of measles, gonorrhea is the most wide-spread of all diseases. It is the greatest producer of involuntary "race suicide" and by sterilization and abortion does more to depopulate the country than does any other disease.

It is estimated that at the present time we have 500,000 prostitutes in this country and that 40,000 die annually. As nearly as can be estimated 30% of these deaths are caused by gonorrhea. In pelvic infection in women we find the cause is generally due to gonorrhea and different investigators claim that a majority of abdominal operations on women are performed

*The rich were treated by their slave doctors, while the poor were attended by the *archiatri*, who occupied about the same position as our district or city physician.

for conditions which originate from this dreaded disease. I will quote some of the figures given by different investigators claiming the percentage of pelvic infection caused by gonorrhea. Price claims 90%; Morris, whose figures were taken from dispensary patients, states 80%; Pozzi and Frederic 75%. Morrow and Bridgman have reported that in the State Training School for Girls at Geneva, Illinois, approximately 55% of the inmates have gonorrhea at the time of their entrance. Dröse, Saenger and Eberhard have shown that on examination of 1361 gynecologic patients 12.7% were infected with gonorrhea.

In carefully considering these figures we can safely say that gonorrhea causes 50% of all pelvic inflammatory diseases in women. Gonorrhea is the king of sterility and Neisser, Bumm and Fürbringer state that 30 to 50% of all childless marriages are directly caused by this disease. In France, it is claimed that out of 10,000,000 families, 2,000,000 are without issue. With these figures Neisser believes that in nearly 1,000,000 of these sterile marriages in France, gonorrhea is the etiologic factor.

In the United States census of 1900 for the blind and deaf, ophthalmia neonatorum was the cause of blindness in 25.02%. It is claimed that 10% of all blindness in the world may be blamed to gonorrhea.

In 1901 a committee was appointed to consider the prevention of venereal diseases in New York City, and circulars were sent to 4750 physicians inquiring as to venereal diseases. From the replies¹ received it was estimated that there were 200,000 active venereal cases walking in the streets of New York daily.

The Committee on Prophylaxis of Venereal Diseases of the Washington State Medical Association informs us that 80% of all men in large cities have had gonorrhea once or several times, 45% infect their wives, and 80% of all operations upon women for diseases of the uterus and adenexa are caused by this disease. With this report it is stated that 20% of blindness results from gonorrhea. Bierhoff estimates that in New York today there are at least 1,000,000 persons affected with venereal disease, and of this number 800,000 are suffering from gonorrhea. Morrow believed that there are 250,000 married women suffering from gonorrhea and that 1,500,000 men contract gonorrhea annually.

Hepburn reports that in Baltimore during 1906, 3090 cases of venereal diseases were treated by physicians in private practice and 6390 cases in dispensaries. During the same year in Baltimore there were treated 575 cases of measles, 1172 cases of diphtheria, 577 cases of scarlet fever, 175 cases of chicken-pox, 58 cases of small-pox, and 733 cases of tuberculosis, making a total of 3310 cases of infectious diseases against a total of 9450 cases of venereal disease.

¹ Report of the Committee of Seven, Med. New York, Dec. 21, 1909.

Swarts, in the report of the New York State Sanitary Officers, in 1910, states that 70% of all women who come to New York hospitals for treatment of venereal diseases are reputable married women who have been innocently infected by their husbands. He also reports 12,500 cases of measles, 11,500 cases of diphtheria, 19,000 cases of tuberculosis, making in round numbers 41,000 cases of infectious diseases. During this same period there were 243,000 cases of venereal diseases. In Germany, Litchfield estimates that in Berlin there are infected annually from four to five per cent. of the soldiers, 13 to 30% of waitresses, 16% of salesmen, and 52% of students. In a report of April, 1910, it was estimated that 100,000 persons were treated daily in Germany for venereal diseases.

These last figures I wish to mention to show that venereal disease is prevalent to a large extent all over the world and that the United States is not the only home of these dreaded diseases.

Generally most statistics taken from civil life are more or less inaccurate. In the army and navy conditions exist whereby frequent medical examinations are held. In this way statistics as to the prevalence of venereal diseases can be relied on with more certainty. It has been generally thought that in the army and navy venereal diseases are more frequent than in civil life. Von Topy states the relative venereal morbidity in armies bears a close relationship to the prevalence of this class of disease among civilians in the district in which the soldiers are quartered.

Munson gives the following figures relative to the prevalence of venereal disease per 1,000 in armies:—

Germany	29.9
Russia	36.0
Japan	40.0
Holland	48.0
France	49.0
Austria-Hungary	60.0
Great Britain (Home)	173.8
“ “ (Foreign)	522.3
United States	73.0

With this large per cent. of infection in the United States army it is easy to see how venereal diseases hold first place for admissions to hospitals and cause more discharges and render more men non-efficient than any other single factor. About the same can be said of the United States Navy. For a five years' period, from 1904 to 1909, according to Report of Surgeon General U. S. N., with an average of 43,165 men in the navy and marine corps, there were admitted to the hospitals for treatment for venereal diseases 32,852 patients, 11,526 were suffering from gonorrhea and 4890 from syphilis. The remainder were treated for other forms of genito-urinary diseases.

With this vast amount of venereal disease present there can be no question as to the existence of prostitution throughout the United States. It has been estimated that New York today has at least 75,000 prostitutes and other cities have the same number in proportion to their population. With such conditions present venereal disease costs the country a great deal of money. Kelley in *Jour. Amer. Med. Asso.*, October 6, 1912, estimated that America spent three billion dollars a year as a result of these diseases. The Chicago Vice Commission has estimated that profits obtained from prostitution in that city amount to at least \$15,000,000 annually.

Now that we are aware that the prevalence of venereal disease is so great the question of controlling such infection should receive the attention of every physician and student of sociology. The question of prevention of venereal disease is a subject that most medical men have not cared to discuss. Some are willing to reap whatever financial gain they may obtain for the treatment of these cases without the least care of how the public is protected from infection from this class of patients. This is more true of the English speaking nations, for statistics show how prevalent the disease is at the present time and how little is being done to check its wide spread menace to public and private health. Our boards of health still ignore venereal diseases, allowing syphilitics to wander about at large in the acute infectious stage of the disease, thus placing themselves in a position where they can infect the innocent.

A case which came under my care at the genito-urinary clinic at the Worcester City Hospital I may cite as an example.

A girl, twenty years of age, purchased a harmonica in a five and ten-cent store. The instrument lay on a counter and was exposed so that whoever wished was at liberty to pick it up and play on it. On returning to her home she practised on the instrument. On the second day she noticed that her lower lip was sore where there was an abrasion from a rough surface on the harmonica. The abrasion did not disappear under ordinary treatment, and at the end of two weeks it had become a sore of considerable size. She consulted a physician and was informed that she was suffering from "cold sore" and was advised to have it cauterized. Following cauterization the sore became enlarged to such an extent and associated with such marked glandular enlargement below the angles of both jaws that she consulted another physician who prescribed an ointment and gave her some medicine to take internally. During the sixth week from the time of the appearance of the sore on the lower lip patient noticed an eruption on her chest and abdomen. Not knowing the cause of this eruption she came to the hospital for a diagnosis and was referred to my clinic. On examination she presented a hard indurated sore on the lower lip which had partly healed leaving a hard area the size of one-quarter of a walnut. There was a general glandular enlargement, more marked under the angle of the jaw on the same side as the sore. On the back, arms, abdomen and thighs was

a diffused roseolate macular eruption. This associated with other signs and symptoms plus a positive Wassermann test proved the case to be syphilis.

In this case we have a girl of twenty suffering from a disease that she knew nothing of. Her infection was contracted in an innocent way. The most probable manner was that some person wandering about in the early infectious stage of syphilis had picked up the instrument and attempted to play it. His mouth contained mucous patches which were applied to the playing surface of the instrument infecting it with the spirocheta pallida which in turn was the cause of the chancre on the lip of the innocent patient. Up to the time of consulting me the patient knew nothing as to the highly infectious state she was in. She did not realize the possibility of infecting other members of the family, and in consequence no forms of prophylaxis were carried out.

In this case, if we had medical supervision established legally for the prevention of venereal diseases this patient would not have met with this infection. Here we see the lax condition of our boards of health, not due to their fault, but simply because there is no law to compel them to single out venereal disease and try to reduce its prevalence. To prevent such forms of infection I believe that there should be established a board in each city entirely separate from the local board of health but associated with either a national or state board, and that its work should be for the prevention of venereal diseases. When cases are discovered they should be reported to this board and if it is found that the patients' circumstances are such that they are unable to receive private attention, then a clinic should be provided for their care. The patients should be required to report regularly for treatment and for instructions, and on failing to do so should be reported immediately to this board which will in turn look them up and legally inform them that they are to abide by the instructions.

On the other hand, if the patient can afford private attention then his physician is held responsible for the control of his case, until he is in such condition as not to infect others. This class of patients should also be reported to the board as soon as a positive diagnosis of syphilis is made, and if they refuse to follow the physician's advice they should be reported and treated in a manner similar to the dispensary case.

There is no doubt that under the present conditions venereal diseases are alarmingly on the increase, and the question arises what methods shall be used to prevent their spread. First we must consider the source of infection and then apply suitable forms of prophylaxis. In the United States at the present time there are in round numbers at least 500,000 prostitutes, and of this number over 50% are infected with some form of venereal disease. On the other

hand there is a large number of males suffering from chronic infections who remain uncured either from ignorance or the lack of funds to receive proper treatment.

The fact that I believe that women are for many reasons the most prolific source of infection would lead me first to consider, how shall prostitution be controlled so as to reduce venereal infection to a smaller percentage. We realize that it is a sheer absurdity to believe that prostitution can ever be completely eradicated. It has existed from the very beginning of the human race and will surely continue. To try to directly control sexual indulgence would be useless and the time would be wasted, for the appetite forms one of the strongest, if not the strongest instincts of the human race. We must consider that if it were not for this passion the world would soon be depopulated. Probably no greater cause exists today in the producing of prostitution than the high cost of living. The increased cost of living postpones marriage and leaves in every city a large number of healthy individuals of both sexes whose normal sexual desires have no legitimate means of gratification. We must sorrowfully confess that the home environment of many girls is not the best, and if such is the case we must consider her welfare when away from home. Surely prostitution does not begin at home, nor does it begin suddenly. It is a gradual development and is contracted from our "social evils." The greatest evils in my mind are the cheap dance halls and places of entertainment associated with the paying of a "low living wage." If these economic and social factors were better regulated I believe that prostitution would not be so great.

Realizing that it is impossible absolutely to abolish prostitution, then we must consider what methods are the best to prevent the spread of venereal diseases by this source.

First, let us consider what other nations are doing. Germany has organized a department which consists of special police and medical men. The police department looks after the supervision of the prostitutes, seeing that they do not solicit in the streets. If they do, they are warned, and should they be caught a second time they are brought to the police station where they are given a talk and provided with a booklet containing information concerning places where medical treatment is given and describing the dangers of illicit intercourse, venereal disease, and the manner in which it is spread. If the girl is under age notice is sent to her parents. If, despite these warnings, she persists in her course of living she is examined, and if found to be diseased she is sent to a hospital where she is detained, and treated until the period of her infectiousness is over. If she is found to be free from infection she is inscribed on the records and given a book that is countersigned at each medical examination. No girl under eighteen years is inscribed, but should she be

infected she is sent to a hospital for treatment. The police in performing their duties wear plain clothes and if an arrest is made a closed cab is employed. The police records are available only to members of this board. The department occupies separate buildings having private entrances, exits, and waiting rooms for the women. The women are well treated and the entire procedure is carried out with as little publicity as possible.

Berlin, which is a city of 2,500,000 population, is divided into twelve districts, each of which has a physician in charge. The first examination is made by female physicians. No woman who shows that she is earning money elsewhere can be inscribed, and if at any time she should care to reform, her name is then removed from the inscribed list. This is about the general method employed in Germany; however the methods vary somewhat in different cities. In Dresden a rule is made whereby scrapings from the cervix and urethra are stained and cultures grown. The prostitutes are divided into three classes. Class I consists of women under the age of 24 years, and of all women who have not been under control for one year. Class II of women between 24 and 34 years of age. These are examined once a week. Class III, women over 35 years of age, are examined every two weeks. All women are given advice as to hygienic regulations and are advised against associating with minors. They are asked to dress decently and conduct themselves in a proper manner when in public. They cannot visit parks and are not allowed to show themselves at the windows of their dwellings. These are some of the rules and regulations that the prostitutes are compelled to carry out. As a result of this method of controlling prostitutes it is claimed that venereal infection has been considerably reduced. DeForest reported that in Dresden infection had been reduced 40% among the women. Biernoff states that in 1911, 3024 sources of infection were removed by the above method. Infection is somewhat uncommon in the registered prostitutes and good order is maintained throughout the larger cities of Germany.

In Norway venereal diseases are reported and patients are treated at the public expense. Treatment is compulsory and physicians are obliged to inform the patient as to the infectious character of the disease. Should the patient infect another then he or she is liable for the expense or treatment and damage suffered by the one infected. Physicians are in charge of the sanitary offices and report good work.

In France prostitutes are under police and medical control. If a woman in the street is suspected of prostitution she is arrested by special police detached for this work. If it is proven that she is a prostitute she is inscribed and given a card which is countersigned at each examination. Inmates of houses are examined weekly and others are obliged to report for examination every two weeks. At any time they

are found to be diseased they are sent to a special hospital where they are detained until they are free from danger of infecting others. Paris has over 100,000 prostitutes and it has been estimated by Fournier that only 7.08% of infection appearing in men is contracted from public prostitutes.

In England attempts at police regulation have been tried and the results have been a failure so that this system is now abandoned.

In Italy, free beds are provided for venereal patients who are treated until all danger of infecting others is passed. Japan, Austro-Hungary and Havana also carry out a similar system.

In the United States the method of dealing with prostitution varies in different localities, this being due to different laws in each state. The general feeling has been strongly against any form of official recognition. However, some cities have made an attempt to regulate prostitution. Detroit at one time contained 125 houses of ill fame and registered about 500 prostitutes. This soon became unpopular and at the end of one year was abandoned.

In New York in the year 1910 the Page Bill was passed which provided for medical examination of all females convicted of soliciting. The examination was made by a female physician, and if a person of this class was found to be affected she was sent to a public hospital having a ward for the treatment of the disease from which she was suffering. After being cured so as not to infect others she was discharged and released from custody upon the written order of the officer in charge of the institution to which she was committed. If the prisoner was cured prior to the expiration of her sentence she was then transferred to a work-house and discharged at the end of her time. On discharge no certificate of any kind was given to the woman. From reports of the Board of Police Magistrates the law was effecting some good. After having been in effect for about one year the Page Law was declared unconstitutional, and all examinations were suspended.

In Salt Lake City prostitution is ignored but officials give a license under the name of a bond. Every month the prostitutes are arrested and then bonded for \$10.00 or \$15.00 a head to appear and answer to the charge of vagrancy. They never appear and the bond is forfeited, the money going to the city treasury. This acts as a license to the prostitute. This or similar methods have been carried out in the different cities throughout the United States.

I understand that in Portsmouth, N. H., the city officials recognize that with the large number of soldiers stationed in that city vice and venereal disease are bound to spread. They have given permission to houses in certain locations for the keeping of prostitutes which are said to number about one hundred. The women are restricted and are not allowed in public but only when on business and then they must go un-

corted. They are examined once a week by a physician who reports their condition to the chief of police. When a new arrival comes to the city she reports to the police, who take her record and give instructions as to her mode of living. Should she at any time fail to obey these instructions she is ordered from the city or arrested. At certain times a moral wave sweeps the city and the police officials order all houses of ill fame closed until this condition subsides, when they again give their consent and protection.

In the early part of my paper I have mentioned that probably 50% or more of the prostitutes in the United States are infected with some form of venereal disease. From cases that come to me for treatment I would judge 80 to 90% receive their infection from public prostitutes. There is no wonder that this condition exists when we consider that at the present time we have no methods of controlling these classes of patients who wander about in a highly infectious state.

Our methods of controlling prostitution in the United States at the present time do nothing but open up illegal avenues for "graft," whereby certain officials add to their salaries at the city's expense and to the detriment of the public health.

Would it not be better to regulate prostitution if by so doing we could eliminate houses of ill repute that thrive along our country roads, rid the police systems of many grafts, wipe out the white slave traffic and the harboring of inmates, drive away the clandestine prostitutes and dive keeper, and lastly, an important point, stop the sale of liquor in brothels which in many cases is the cause of prostitution?

The results obtained by the Germans, I believe, show that by controlling prostitution they have been able to check the spread of venereal disease.

In Paris, a city of 100,000 prostitutes, Fournier shows that only 7.08% of the infected cases are contracted from public prostitutes. If prostitutes are under control I believe that it gives us a starting point whereby we will be able to reduce the number of these people to a smaller percentage. It will bring the prostitute before us in her early career, and the chances of reforming her are greater than in later life. The regulation of prostitution if properly enforced controls only the females, the male being free to spread the disease, therefore it is proper to consider the control of infection through this means. There is no doubt that a large proportion of patients suffering from venereal diseases are unable to seek the services of a private physician, and, as a consequence, are obliged to roam about in an infectious state. Throughout our cities the dispensaries and hospitals provide in a very scanty way for the care of such patients. This is more true in smaller cities where no medical schools are established. In larger cities, however, where medical schools are found, there are

one or more dispensaries associated with a general hospital where attention is given to patients suffering from venereal diseases. These are not established for the protection of the public but for the benefit of the medical student.

Cities with a population up to 100,000 inhabitants pay little attention to the treatment of venereal diseases. Should we compare the amount of infection present in cities of this size with large ones, where medical colleges are found, I believe that the percentage is as high in proportion to the population as it is in larger cities. I believe that every city or town of sufficient size that is provided with a hospital should see that there is a well-equipped department established for the care of venereal cases. This department should care for patients that are unable to pay for private attention elsewhere. The hospital should be equipped with a venereal ward and laboratory facilities for diagnosis and blood tests in order to determine the condition of patients. In conjunction with the ward it would be wise to have a special operating room for the giving of salvarsan and caring for such patients when surgical operating is advised. By doing so, patients in a highly infectious state will not come in contact with the surgical cases in the hospital. The city should furnish salvarsan free for the treatment of all cases that apply at the hospital and are unable to pay for the drug. Why not? A syphilitic patient who is in an infectious state is a danger to the community at large. He or she may be the means of infecting the innocent through drinking cups or many other means where the public is exposed.

We give out serum for the treatment of diphtheria and meningitis because we believe that persons infected with these diseases are dangerous to the public at large. We even go so far as to deprive them of their liberty by quarantine until they are not dangerous to the public. These diseases are curable and produce no after effects in the following generations. Yet for such a disease as syphilis that ruins homes, produces destruction and fills insane hospitals, we do not provide prophylaxis or care, still knowing that today it marks one of the greatest, if not the greatest danger to the race. If such is the condition why should not salvarsan be furnished by the state or city to be used in cases that are dangerous to the public? Is there any reason why we should not have the power of depriving of their liberty the highly infected cases that do not submit to proper treatment by placing them in quarantine until all danger to the public is past? My answer to this question would be that we should have the power just as we have in quarantining diphtheria, scarlet fever, and other infectious diseases. This can easily be accomplished if a venereal ward is established in our cities, and if a law is passed whereby physicians are obliged to report all cases of syphilis. In this way, cases that cannot provide for private attention outside will be cared for in one venereal ward. These patients are to be quarantined

until all danger of infecting others has passed. To do this will require very little time. Under proper treatment syphilitic patients who are highly infectious can be placed under control inside of two weeks.

Having the patient placed under control and where he is not dangerous to the public, we must provide some means of completing the cure. This can be carried out in our dispensaries which are associated with our hospitals. At the present time most hospitals are well-equipped to care for ambulatory cases, and the only thing required of the patient is to carry out the instructions that are given him. Venereal diseases when properly treated very seldom keep the patient from his work. To seek treatment at dispensary hours will eventually cost the patient his position. For this reason many cases remain away from treatment. These are the cases we wish to reach if we hope to produce a cure and protect the future generation. For this reason I believe that dispensaries in large cities should arrange their hours so that the working class can apply for treatment during the noon hour which is allowed them for lunch. Of course, where there is a large clinic one will not be able to treat all cases during the noon hour, and in such a condition, I believe that the establishment of an evening clinic is the proper solution.

By carrying out these methods patients will be encouraged and shown that everything is being done to cure them of their infection, and as a result we will be able to reach the chronic infected cases that are a danger to the community at large. By such curative and preventative efforts we not only will be safeguarding the community from the infective patient, but in the case of syphilis we will be insuring the individual's future against the distressing tertiary stages and the incapacitating parasyphilitic forms, at the same time conserving the progeny. The gonorrheic will be saved many distressing complications and much surgery. Sterility and blindness will be diminished, giving back to the community in vital force a value infinitely in excess of the cost.

DIFFERENTIAL DIAGNOSIS AND INDICATIONS FOR TREATMENT OF TUMORS OF THE NECK.

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RICHLY supplied with lymphatic and secretory glands, and exceedingly vascular, no region of the human body is more subject to inflammatory involvements and growths than the neck, unless it is the abdomen. The pathology of these lesions has a wide range, and their diagnosis is at

times difficult or impossible without the aid of sections and the microscope. Their correct diagnosis is extremely important, in order that appropriate treatment may be applied without loss of time, and that a correct prognosis may be made. In this discussion the word tumor is used in its broad sense as including all swellings, acute and chronic, as well as true neoplasms. The lesions of this area may be classified as follows:—

TUMORS OF THE NECK.

A. Inflammatory.

a. Acute:

1. Parotitis (mumps).
2. Submaxillary adenitis.
3. Cervical lymph adenitis.
4. Furunculosis and carbuncle.
5. Anthrax (malignant pustule).
6. Actinomyces.
7. Echinococcus cyst.

b. Chronic:

8. Chronic lymph adenitis.
9. Tuberculosis.
10. Syphilis.
11. Hodgkin's disease.
12. Mikulicz's disease.

B. Embryologic Malformations.

13. Branchial cysts.
14. Tumor of thyroglossal duct.

C. Neoplastic.

a. Benign:

15. Lipoma.
16. Fibroma.
17. Chondroma.
18. Osteoma.
19. Sebaceous cyst (wen).
20. Angioma.
 - a. Hemangioma.
 - b. Lymphangioma or hydrocele.
21. Hygroma.
22. Teratoma.
 - a. Dermoid cysts.
 - b. Mixed tumors of salivary glands.

b. Malignant:

23. Carcinoma and epithelioma.
24. Sarcoma.
25. Lymphosarcoma.

D. Tumors of Special Organs.

a. Thyroid.

26. Physiologic hypertrophy of menstruation and pregnancy.
27. Colloid adenoma (goitre) with or without cysts.
28. Parenchymatous hyperplasia.
29. Foetal adenoma.
30. Malignant disease.
 - a. Carcinoma.
 - b. Sarcoma.
- b. Carotid body (31).
- c. Aneurysm of aorta and carotids (32).
- d. Tumors of larynx (33).

INFLAMMATORY LESIONS.

Acute. Under this heading we have acute parotitis, and acute lymphadenitis of the submaxillary, cervical, sublingual and submental glands. Acute infections of these glands are due to pathogenic organisms, with the exception of a specific infection of the parotid gland, causing mumps and the occlusion swellings of the parotid or salivary ducts, which are caused by pressure or calculi with secondary infections developing.

Parotitis. The specific or infectious involvement of parotitis or mumps is accompanied by constitutional symptoms with sometimes a high range of temperature; the gland is swollen, tender and painful. Complications are unusual in a child, but in the adult male orchitis is a frequent accompaniment, and in a female congestion of the breasts, ovaries and labia is not uncommon.

The most frequent mistake in diagnosis is the confusion of mumps with cervical lymphadenitis; the latter occurs back of the jaw and below the ear, while in mumps the swelling extends forward upon the face and posterior to the sterno-mastoid muscle, the lobe of the ear being the center of the swelling. The parotids contain lymphatic glands in their substance. Infections may be carried into the parotid through these channels or by the blood stream. This form of parotitis is more frequently the result of metastasis or general infection than from a direct source. It occurs in typhoid and scarlet fever, the other infectious diseases and in suppurative lesions, both before and after operation. This form of parotitis should not be diagnosed as specific parotitis or mumps, as the condition requires early incision and drainage for relief of tension.



Acute lymphadenitis.

Submaxillary and Cervical Lymphadenitis. Acute infection and swelling of the submaxillary and cervical glands is not usually suppurative, and in an individual with good resistance the swelling frequently subsides under antiphlogistic treatment and with appropriate treatment of the throat, nose, teeth and mouth. The original focus should be carefully searched for and treated.

Acute suppurative lesions in the neck are most frequently found in the submaxillary region: the space above the carotid packet is the next most frequently involved. The intracapsular abscess of the salivary glands may become rapidly serious, due to tension under which the infec-

tion is held. Evidences of marked constitutional infection rapidly develop, extensive swelling occurs, causing respiratory disturbance, and occasionally death may result before active suppuration exists. This condition is known as Ludwig's angina. The acuteness of the onset and the marked local condition and constitutional symptoms leave little room for error in diagnosis of these cases. The treatment: early and thorough drainage by careful dissecting is advised, as the pus frequently lies in the region of the great vessels, and even the ordinarily safe method of Hilton may not be suitable in this deep area of the neck.

Furunculosis and Carbuncle. The neck is particularly liable to staphylococcic furuncles and carbuncles, the posterior area of the neck being the most frequently affected. The former frequently appear in series, and their diagnosis can hardly be mistaken. Incision, drainage, hot applications and the employment of autogenous vaccines are indicated in the former, and complete excision of the latter, the carbuncle, is the most desirable method of treatment where it can be carried out. The frequent association of glycosuria with carbuncle must be remembered and appropriate internal treatment employed.

Anthrax. Anthrax or malignant pustule is a rare infection on this continent; it may occur upon the neck, but is most frequently found upon the face and hands. An elevated pustule of varying dimensions with a depressed central scab is the early characteristic appearance. Removing this incrustation liberates a brownish, bloody fluid. The surrounding tissues become highly involved, and later purplish and gangrenous in appearance, although there may be no indication of suppuration. The occupation of the patient is important, diagnostically, as anthrax is known among other derivations as wool-sorters' disease. The finding of the anthrax bacillus is the laboratory diagnostic method of the greatest importance.

Actinomyces. This specific and infectious lesion, essentially a disease of the lower animals, and known as lumpy jaw in cattle, was first discovered in man by Israel¹ in 1878, the infecting agent being the ray fungus. The region of the face and neck are most frequently involved; it is an accident of young life, occurring more frequently in males. The disease is believed to be increasing in this country.

The portal of entrance to the region which interests us is usually an abrasion or ulceration about the tongue, teeth or cheeks. A hard, nodular, circumscribed swelling slowly appears in the subclavicular region or at the angle of the jaw. The skin becomes purplish and tends to break down. Secondary infection usually intervenes. The lesion progresses so slowly that the diagnosis may easily be confused with sarcoma or carcinoma, tuberculosis or syphilis. Characteristic granules are visible to the naked eye in the pus of actinomycotic lesions, and the ray fungus may be demonstrated under the

microscope. Its correct diagnosis is highly important, as vigorous and persistent treatment is essential. Liberation and destruction of the invading fungi by incision, curettage, silver nitrate applications locally, iodide of potassium internally, and the best of hygiene are the accepted methods of treatment.

Echinococcus Cysts. Echinococcus cysts fortunately rarely occur in the neck; they spring from the deep recesses and gradually bulge outward at the side of the neck, either anteriorly or posteriorly, to the sterno-mastoid muscle. As in many cystic tumors the aspirating needle is the surest method of diagnosis. The clear contents, containing the characteristic hooklets, is pathognomonic, and excision is the only treatment.

Chronic Lymph Adenitis. The continuation of an acute infection by the less virulent organisms of the salivary and cervical lymphatic glands may lead to chronic hyperplastic changes which slowly subside after the focus of infection is cured. A chronic indolent infection of the lymphatics and cellular tissues of the neck, causing dense induration, suppurating slowly and irregularly, first described by Reclus² in 1894, is known as Ligneous Phlegmon. No one specific organism is believed to cause this condition, all manner of organisms being found. The disease must be differentiated from syphilis, tuberculous adenitis and malignancy. The ordinary measures used for hastening suppuration are ineffectual. Small multiple abscesses or eventually a large abscess may develop, requiring incision and drainage.



Tuberculous cervical adenitis.

Tuberculosis. Tuberculosis is by far the most common cause of chronic glandular enlargement of the neck. The tubercular organisms in cases

of primary infection usually gain entrance by the tonsil, pharynx, nares, gums and teeth. The extension is through the lymph channels, the lymphatic glands harboring the bacilli, hyperplasia resulting, followed by softening and glandular destruction and caseation. These swellings vary in size from small nodules to extensive, deforming masses. Exacerbations and remissions are common. During the period of remission the patient and family are led to hope that the condition is recovering; later fresh invasion through one of the paths above indicated results in increase in the size of the growths, with involvement of additional glands. Most of the older writers discuss this condition as scrofula; it was considered to be the local expression of a general glandular disease. A more minute study of the lymphatic system by Poirier,³ Cuneo and others has taught us that the cervical lymphatic glands do not drain the thorax and the mediastinum, and we may conclude that cervical tuberculous adenitis remains a local condition until a hematogenous infection occurs.

The diagnosis of this condition is exceedingly important, as is the institution of prompt and thorough treatment. It is possible to confuse tuberculous adenitis with the more acute infections, also with Hodgkin's Disease, lymphosarcoma, lymphatic leukemia, syphilis and malignant neoplasms. Their chronicity and their association with evident lesions of the throat, nares or buccal cavity, the recessions and exacerbations, the absence of enlarged glands in other parts of the body, the fact of their occurring in children and young life, the absence of other general infections, such as syphilis, which can be determined by laboratory methods, all point to a diagnosis of tuberculous adenitis. It is, however, at times necessary to secure a section or to make an incision through the capsule of one of the glands to determine its true character.

The fact that there is at present a considerable diversity of opinion as to the proper treatment of cervical tuberculous adenitis, and that its occurrence is so exceedingly common, makes this one of the most important divisions of our subject. Groups of cases call for different lines of treatment: first, those with gross lesions as tonsillitis and adenitis with comparatively early invasion of the cervical glands. Our effort in these cases should be to clear the throat and nares of the disease-predisposing tissue. The tonsils and adenoids, the teeth and gums should also claim careful attention. Following these procedures the child or the young individual should be placed upon an anti-tuberculous régime with all that that implies. The application of iodine and other counter-irritants to the skin seems to be of little value. Many of the earlier cases in individuals of good resistance will recover with nothing further.

The second group includes cases where the local process has extended to decided enlargement and softening of the involved glands; it is this group that the surgeon sees most commonly.

The treatment indicated in the first group applies in these cases, and in addition, an incision for the removal of the involved mass, if feasible, cleaning out pus and caseous material, and an application to the invaded tissue of iodine, followed by alcohol, or very hot water. There should be slight provision for drainage at the inferior angle of the incision. In addition subsequent treatment by tuberculin or x-ray is of great value in many cases.

The third group presents a wide extension of the involved glands which have not gone on to suppuration. In these cases, if early improvement does not follow, the treatment applied to group one, with the possible addition of tuberculin or x-rays, and radical dissection of all the involved groups, should be employed. While the operation is extensive, in experienced and careful hands it is fairly safe, because there is an open dissection with all of the structures to be removed and to be avoided visible to the operator.

In the writer's experience there have occurred 78 operations for tuberculous cervical adenitis; there have been no fatalities nor any injuries of important structures. Up to 1910 at the Mayo clinic 649 patients were subjected to complete excision, and there were no immediate fatalities. Pulmonary tuberculosis, if not too extensive, is not a positive contra-indication. With selected methods of anesthesia, and the avoidance of ether, the pulmonary lesion should not be aggravated. The chief objection that the surgeon finds to operations upon these glands is the anticipated scar. This should be avoided as far as possible by making incisions in the normal creases of the neck, by careful suturing of the muscles and subcutaneous tissue, by the avoidance of coarse skin sutures, attention to accurate approximation, and the scrupulous avoidance of infection. It must be remembered that the scar of an incision may be much less extensive and unsightly than the wide and contracted scars of multiple sinuses. Tuberculous adenitis calls for careful judgment and good management. It is a mistake to recommend radical dissection in every case, and it is likewise a mistake to treat in an incomplete manner cases which tend to progress and resist all milder methods.

Syphilis. Chancre upon the lips and tongue is of common occurrence. The cervical glands become rapidly involved, or the chancre may have healed and the patient come complaining only of the glandular enlargement. The history of the chancre may be obscure and the diagnosis in doubt, or the chancre may be still in existence and may be confused with epithelioma. If the sore is in evidence it will have an indurated, reddish base and an ulcerated apex, which on pressure may bleed, but yields no whitish plugs as does the epithelioma. Examination of the scrapings of the ulcer on a dark field stage, in addition to the Wassermann test, should precede operations upon the lip and tongue where there is a possibility of the disease being syphilis. The

cervical glands in syphilis are not operable, but yield to general treatment, while in epithelioma they should always be thoroughly removed.

Hodgkin's Disease. Hodgkin's disease, known also as pseudo-leukemia and malignant lymphoma, is a serious constitutional disease with the early local manifestation of enlargement of the cervical glands. The glandular enlargement, unilateral at first, later becomes bilateral; other glands subsequently become involved, such as the supra-clavicular and axillary chains. Early writers considered this condition tubercular, but recent text-books state that all attempts to establish a bacterial organism as an etiologic factor in the disease have been unsuccessful. In 1910, however, Frankel⁴ and Much, three years later Negri⁵ and Mierniet abroad, Bunting⁶ and Yates, and Billings⁷ and Rosenow in this country, published observations which make it seem probable that a bacterial infection may be accountable for this strange disease. Bunting and Yates have reproduced this disease by inoculating monkeys with a culture obtained from the diseased glands. Billings and Rosenow have published a number of clinical cases; quite a few have improved, and one is apparently cured. The cervical glands enlarge rather rapidly, the submaxillaries being first involved; they are soft, painless, and generally precede any constitutional disturbance. Later there follows general bodily deterioration with cardiac weakness, edema, albuminuria and fatal termination in three to five years.

Hodgkin's disease must be differentiated from the more definite neoplasms; namely, sarcoma, carcinoma, and lympho-sarcoma; also from lymphatic leukemia and tuberculosis. Sarcoma of the lymph glands springs from the connective tissue of the glands and not from the lymphoid cells. They infiltrate widely and are hard and immovable; their course is much more rapid than that of Hodgkin's disease. Carcinoma of this region is usually superficial, commencing in the skin, or is secondary to carcinoma elsewhere. The involvement is hard, nodular, infiltrating, and rapid in its progress.

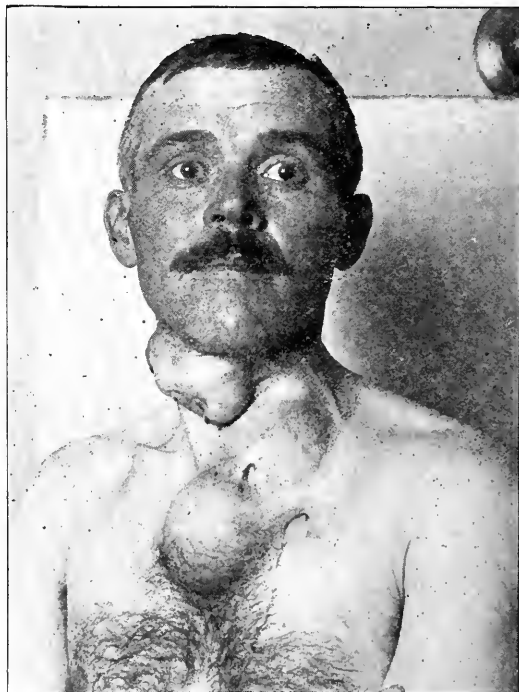
Branchiogenic carcinoma occurs in older individuals, usually females; they are deeply adherent and accompanied by pain. Lympho-sarcoma attacks one gland, usually in the upper part of the neck, breaks through the capsule and infiltrates the surrounding tissue. The skin early becomes discolored,—dark blue. Metastases occur in other organs but not to other groups of glands. Lymphatic leukemia is characterized by marked blood changes, chiefly a great increase in lymphocytes and a general lymphatic involvement. Prior to the use of Roentgen rays, and more recently the bacteriological efforts in treatment of Hodgkin's disease, arsenic was the main reliance, but the disease was almost invariably fatal. With these recent aids it may be proper now to remove the enlarged glands early. We have done this in one case with a satisfactory result thus far.

Mikulicz's Disease. A rather rare type of chronic inflammatory disease of the lachrymal and salivary glands was described in 1892 by Mikulicz,⁸ and the condition bears his name. The author has had no personal experience with this disease. A small percentage of these cases are associated with leukemia and enlargement of the spleen.

Wilder Tileston⁹ states that the cases to which the term Mikulicz's disease should be applied present the following features: chronic, painless; symmetrical enlargement of the salivary or lachrymal glands, or both, with or without enlargement of the spleen or lymph nodes. The disease runs a benign course with no tendency to recurrence after complete extirpation of the affected glands. A frequent cure is obtained under the use of arsenic, iodides or the x-ray and sometimes spontaneously. The case is supposed to be some infectious agent or a number of agencies. Tuberculosis, Hodgkin's disease and syphilis must be carefully excluded.

EMBRYOLOGIC MALFORMATIONS.

Branchial Cysts. The failure of one of the gill-clefts to close in the embryologic period results in a sinus in the neck or thorax, the inner opening of which is in the pharynx in the region



Branchiogenic cyst.

of Rosenmüller's fossa or one of the tonsils. There may or may not be an outer opening; if one is present it usually occurs anterior to the sterno-mastoid muscle and inferior to the hyoid bone. The sinus, however, may be found in the median line. It is generally recognized now that the sinus originates from the second cleft.

If the sinus is imperforate a cyst results. These cysts may vary much in size and may be uni- or multilocular. After a long period of the existence of sinus or cyst, or both, the skin may break down and the cyst discharge. Minute examination will find the cystic tract extending upward through the platysma muscle and deep fascia of the neck to the great cornua of the hyoid bone, thence on between the carotids, reaching the pharynx at the point before mentioned.

The diagnosis of these cysts may be confused with the cystic hygroma, with abscess, lymphangioma, the cysts of aberrant thyroids, tuberculous glands, and possibly lipoma and wens. The contents of these cysts varies from fatty, atheromatous material containing cholesterol crystals with absence of bacteria in non-infected cases, to that of a mucoid, gray, starchy material, the variation depending upon the character of the epithelial cells lining the cyst. If necessary, a portion of the cyst wall can be excised for examination. These cysts are frequently incised in the belief that they are abscesses. The only benefit of such an incision is to relieve tension. The proper operation is one of careful dissection.

Thyroglossal Cysts. Thyroglossal cysts result from incomplete obliteration of the thyroglossal duct, which extends from the foramen cecum to the isthmus of the thyroid. Like the branchiogenic cysts, they usually develop in young or middle life and occur at the base of the tongue or the floor of the mouth, or the cyst may appear in the midline, protruding above or below the hyoid bone. They may be confused with ranulas, dermoid cysts, and lipomata, and unless secondarily infected the contents are a gray, starchy mucus. The ranula is a translucent cyst filled with mucus and occurring at the base of the tongue. Dermoid cysts may occur in this location, but their contents establishes a diagnosis. The surgical treatment consists in carefully following up the duct to its origin. If a delicate probe cannot be passed through the duct, injection of methylene blue will aid in tracing its source. Failure to accomplish this generally results in recurrence.

NEOPLASTIC GROWTHS.

Benign. Lipoma occurs not infrequently in the neck, especially on the posterior surface. It is of slow growth and characteristic consistency, non-inflammatory, not painful, and regular in outline. Lipomata are not likely to be mistaken for other neoplasms; they are occasionally incorrectly diagnosed as wens and tuberculous glands; they rarely ever tend to malignancy; removal by incision is the only treatment.

Fibroma. These growths are not common in the neck; they originate in the deep fascia; they are painless, smooth, mobile, and yet their pathology must remain in doubt until they are excised, which is the only treatment.

Chondroma. True chondromas, aside from

the mixed tumors of the salivary glands, are extremely rare in the neck. They are benign, of slow growth, and of characteristically cartilaginous feel. A true chondroma of the hyoid bone is illustrated in Hertzler's¹⁰ work on tumors from a case of J. W. Perkins'. Operative removal is the only treatment.

Wens or Sebaceous Cysts are of common occurrence in all parts of the neck; their superficial relations and rounded form identify them in their primary state, but when broken down and infected with liquid contents and inflamed surface the diagnosis is not always simple. They have been opened with the anticipation of finding an abscess and have been mistaken for tuberculous glands. The treatment is removal by dissection of the cyst wall; incision and drainage practically always being followed by recurrence.

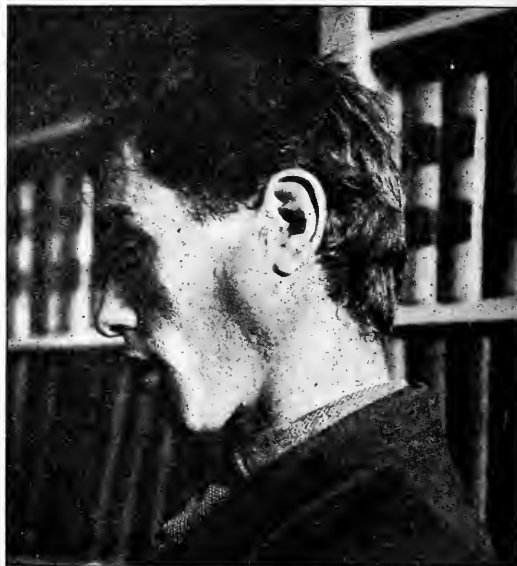
Angioma. Angiomata are divided into hemangioma and lymphangioma, and the hemangioma into superficial and cavernous. The neck and face furnish a common location for the superficial angioma. They can be scarcely confused with any other growth. The red, purplish color, slightly elevated surface, and the gradual extension, if occurring in a child, establish their identity. The cavernous angioma, occurring more frequently in the back of the neck, has thin, vascular walls, with little or no musculature. They may be superficial or deep, and are sometimes confused with sarcoma. The simple angioma may be removed by electrolysis, radium or operation, if the surface is not too extensive, while the cavernous variety requires a careful and quick dissection or deep ligation.

Lymphangioma. Lymphangiomata are like the foregoing with less tendency for new growth of vessels; they also may be superficial or deep, and occur more frequently in the neck than elsewhere. They are sometimes designated as hydrocele of the neck, varying in size, increasing or remaining stationary, rising above the clavicle, but demonstrably springing from below. The diagnosis can only be confused with other cysts, and their contents of lymph tell the true story. Fortunately they are rather rare, for their treatment is unsatisfactory. They occasionally subside spontaneously. Operation may be difficult or impossible. Puneture and injection of iodine in inoperable cases is recommended.

Hygroma. Hygromatous cysts occur most frequently in the neck and axilla; they are probably the result of embryonic sequestration of lymphatic tissue and retain the power of persistent, regular growth. They are usually discovered at or shortly after birth, but may not reach a size sufficient to have them brought to the attention of the physician until some months or years later. The writer has recently reported two cases with operation, to which communication Dr. A. M. Rowley added one case. These cysts are thin-walled, contain clear fluid, and may be easily mistaken for branchiogenic cysts or broken down glands, as they grow to a large



Hygroma cysticum colli.



Mixed tumor of the parotid gland.

size, and in some cases are most disfiguring and do not respond to treatment. Their early recognition and careful dissection is important.

Teratoma. These tumors are divided into dermoid cysts and mixed tumors of the salivary glands. The dermoid cysts are not uncommon in the neck, occurring along the lines of the branchial fissures. There are two varieties, sequestration and tubal dermoids. The former is much more common and is caused by an inclusion of the skin at the region of the embryonic fissures. The tubal dermoids occur in obsolete canals; hence their name. These cysts may be taken for sebaceous cysts or lipomata; the diagnosis is established by aspiration. The contents vary with the character of the tissue included. Soft sebaceous material predominates. Dermoids of other locations with more complicated inclusions furnish various products of epidermal cells. Their treatment is excision.

Mixed Tumors of the Salivary Glands. Mixed tumors of the salivary glands occur most frequently in the parotid. The author has observed six cases, four of which were operated upon; all were of the parotid gland. Of 56 cases operated upon at the Mayo clinic 50 were of the parotid and 6 of the submaxillary glands. F. C. Wood¹¹ published a series of 42 cases in 1904, and Wilson¹² and Willis reporting from the Mayo clinic have given a tabulated series of 56 operative cases. From these 110 cases, which have been most carefully studied, conclusions can be drawn as to age, sex incidence, clinical course and tendency to recurrence. They occur somewhat more frequently in males, and during each decade from the first to the seventh, 66% during the first four decades.

There is a large amount of literature upon the subject, and there has been much discussion as to the etiology of these tumors. Wilson and Willis concluded that they are mesenchymata of

embryonic origin. They grow slowly; they may be hard with much fibro-cartilaginous tissue, or soft, and consist largely of a parenchyma varying from adult to embryonic. The former, or hard variety, are more apt to be benign; the latter malignant. They may be confused with other neoplasms, but when occurring in the parotid are so characteristic that the diagnosis is fairly certain. A microscopic section, however, may be necessary to differentiate these tumors from carcinoma and sarcoma.

Usually several years elapse between the occurrence of the growth and the operation for their removal; in the author's experience from twelve to fifteen years. Operation is usually feasible. The seventh nerve may be injured or destroyed with resulting facial paralysis, but it is fair to estimate that 75% may be radically cured. There were nine recurrences in the 56 cases operated upon at the Mayo clinic.

MALIGNANT.

Carcinoma and Epithelioma. Fortunately, primary carcinoma of the neck is comparatively rare. If a primary growth, the origin is usually in the skin, where it is under observation from the first, or a branchiogenic or thyroglossal cyst, where it is deep seated and not suspected until a considerable growth has occurred. If secondary, the primary growth will be found, or a scar following its previous removal, usually upon the lower lip, the cheeks, the tongue, the tonsils, or jaws, regions drained by the cervical lymphatics.

The primary epithelioma or carcinoma of the skin is much less common on the neck than on the face. As in other regions, it usually follows some chronic irritation or original benign skin lesions, as eczema, seborrhea, moles and cornua excrecences. They eventually ulcerate and must be differentiated from syphilis and lupus.

A careful dermatological study with the history and laboratory tests will guide us as to syphilis. The small, round, tubular nodule of lupus, with spreading ulceration and scar formation, will differentiate this lesion from cancer. The treatment is operative, the use of Roentgen rays or radium, or a combination of operation and some form of radiation. Kelly estimates that 95% of these superficial cancers are curable at a fairly early stage by radium. (Personal communication.)

The thyroglossal and branchiogenic carcinomata occur below the deep fascia of the neck more frequently in women of advanced years. Pain may be felt and is frequently referred to the ear before the tumor is in evidence. These growths may be confused with metastases or malignancy from other regions, or with chronic tuberculous adenitis, but their tendency to infiltrate and their irregularity and density are strongly suggestive of their true nature. Operation is rarely successful. Massive radiation probably holds out the only hope of cure. A case has come under the author's observation recently, where in a man of 65 carcinoma of this type has been markedly improved by the use of radium.

Secondary carcinoma in the lymph glands of the neck is not uncommon. The original growth is frequently on the lower lip, tongue, cheek or tonsils. This secondary invasion commences as a small nodule; it is hard and fixed from the first, and is a harbinger of alarming importance. With a primary carcinoma in evidence there can be little chance of error in diagnosis. Occasionally perhaps the glands may be infected with organisms of mixed infection, and some hope may be held that operation upon the original growth is not too late. Secondary carcinoma occurring after the removal of the original growth is especially hopeless.

Sarcoma. Sarcoma of the lymph glands is not a frequent occurrence in the neck; they spring from the connective tissue of the glands and tend to infiltrate early; the more cellular the more malignant they are, the small, round-celled variety being especially so. Their dense, infiltrating, immovable character impresses one at once as to their serious nature. Operation upon some of the more malignant types may hasten the vicious pathology; even securing a section may have a similar, unfavorable effect. Some form of radiation is the one hope in many of these growths.

Secondary sarcoma of the lymph glands of the neck may occur following sarcomatous invasion of the head and face; melanotic moles may metastasize to the neck. Such secondary growths, where one has knowledge of the primary lesion, leave little room for doubt in diagnosis. The prognosis is exceedingly bad under any form of treatment.

Lymphosarcoma. Lymphosarcoma is more common than sarcoma of the lymph glands. Microscopically the structure consists of lymphoid cells enclosed in a stroma. The tumor commences



Lympho-sarcoma.

in one gland, early breaking through the capsule and invading surrounding tissue. Dark discoloration of the skin with breaking down of the subcutaneous tissue follows. While other groups of glands are not likely to be involved, metastases to other organs are common. These growths may be erroneously diagnosed as abscess or chronic inflammatory lesions. They are sometimes unwisely incised. At present radium seems to offer most hope for these serious lesions. A number of cases of serious lympho-sarcoma are reported as having been entirely cured.

TUMORS OF SPECIAL ORGANS.

Thyroid: Physiologic Hypertrophy of Menstruation and Pregnancy. The period of puberty, more particularly in the female, menstruation and pregnancy, are often accompanied by congestion and appreciable bilateral enlargement of the thyroid gland. Unless excessive, this condition can hardly be considered pathologic. Undoubtedly, however, the thyroid gland is at times susceptible to unfavorable influences, as throat infection and functional irritation or stimulation of the sympathetic nervous system. Enlargement of the thyroid due to this physiologic congestion tends to subside with rest and hygiene.

Colloid Adenoma (Goitre) with or Without Cysts. The enlarged thyroid of the colloid type depends upon the increased size of the follicles which are distended by the colloid material. These follicles may coalesce and form cysts containing blood and serum, in addition to the colloid substance. Increased fibrous tissue may cause portions of them to be nodular; they may be tense or soft, unilateral or bilateral; they may be globular and well defined, or may spread across the neck a soft, compressible mass. There is little room for diagnostic error in these cases, but such is occasionally made, and cysts



Diffuse cystic goitre.



Malignant disease of the thyroid.

of other character,—lipomata and malignant disease,—are sometimes mistaken for goitre. In the absence of contra-indication most cases of this type are safely operable, especially those which are well outlined, distinctly cystic, or nodular and cystic. As a rule, operation is safe and simple and exceedingly satisfactory.

Parenchymatous Hyperplasia. The parenchymatous type of goitre is soft and succulent; the cut surface has a dark purple color. The amount of colloid, which is thinner than in the normal gland, is diminished. Thyroid enlargement may involve one or both lobes. It is less distinct in outline and usually of more rapid development than the cystic types. The enlargement may be of small proportions, and yet cause marked hyperthyroidism. In the majority of cases there is a mixed pathology, areas of hyperplasia and excess of colloid existing in the same gland. The accompanying symptoms of the condition, namely, tachycardia, tremor, prostration and weakness, with or without exophthalmos, lead the diagnostician to an inspection of the thyroid and the correct diagnosis. It is this type that calls forth most discussion as to treatment. Rest, hygiene, sedatives and a few remedies will often result in a remission of symptoms with, however, a tendency to recurrence. Ligation of afferent vessels and partial removal of the gland are required for a cure on more than 50%.

Fetal Adenoma. The adenomata of the thyroid are of the fetal and tubular varieties. The fetal type appears soon after birth; its structure is similar to the undeveloped gland. It becomes nodular and rises and falls with deglutition. The tubular resembles the fetal type closely and grows slowly; both are favorable for operation.

Malignant Disease.—Malignant disease of the thyroid includes carcinoma and sarcoma. Carcinoma of the thyroid is not common and generally develops rapidly in a previously pathologic

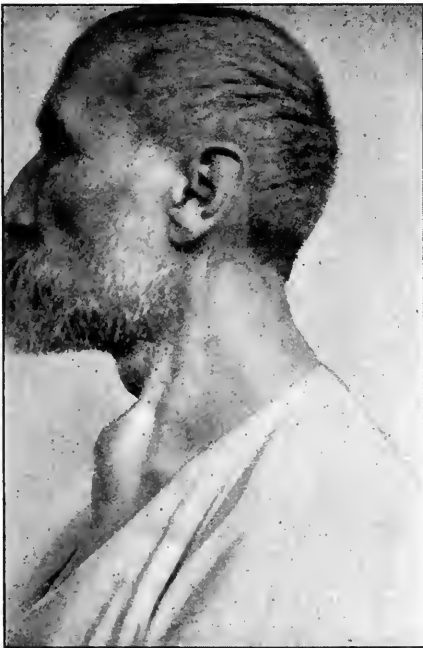
gland; it is apt to be painful and may cause dysphasia; it may be hard and irregular or soft. Involvement and discoloration of the skin and enlarged veins below the growth are suggestive of malignancy. Like carcinoma elsewhere, operation is the chief reliance in treatment, but to offer any hope of permanent cure must be performed early. Pressure on the cesophagus and trachea may call for palliative operations for relief.

Sarcoma is still less common in the thyroid and possesses about the same clinical picture. In a goitre, apparently previously benign, a sudden growth of an irregular, hard, infiltrating character, tending to involve the skin and break down, furnishes the best of evidence of malignancy. All varieties of sarcomatous cells are found in these growths; early operation is the only hope of cure.

Carotid Body. On either side of the neck, in the angle formed by the bifurcation of the common carotid artery, lies the carotid body. It is the size of a grain of rice, oval in shape, red, firm and vascular. Specific elements of the organ are said to be chromaffin, which spring from the sympathetic (embryonic) cells. They occur at adolescence or adult life in either sex. They grow slowly, but later may develop rapidly, producing pressure symptoms and a tumor of such appreciable size that a surgeon is consulted. The location of the growth, its rise and fall, with the underlying artery, the synchronous pulsation in both temporals and the slow growth, are aids in diagnosing this tumor from other neoplasms and aneurysm. These tumors have been declared benign and malignant by different pathologists. While in their early period they may be clinically benign, they are potentially malignant, taking on this character with a rapid growth later in their development. They may be mistaken for branchial cysts, lymphosarcoma

or even lipoma. The diagnosis has usually been made during operation. The operation, if performed early, may be reasonably safe and satisfactory in skilled hands, but later, when the carotid arteries and the internal jugular vein are involved, it is technically difficult and formidable, carrying a mortality of 27%.

Aneurysm of Aorta and Carotids. The development of a soft, smooth, pulsating tumor along the line of a large artery, movable laterally but not longitudinally, carrying an increased bruit to the ear from that of the vessel below, suggests at once an arterial aneurysm. Carotid aneurysms occur in the ratio of one to twenty of other aneurysms. Aneurysm of the thoracic aorta is five times as frequent as that of the abdominal aorta. The condition of the other arteries, the presence of luetic symptoms, and the luetin or



Aneurysm of common carotid artery developing one year after sub-sternal thyroidectomy.

salvarsan test are valuable diagnostic aids. It is said, however, that diagnosis of aneurysm has caused more distinguished mistakes than almost any other lesion; no radical operation has been successful upon aneurysm of the aorta. The wiring operation of Prof. Halsted is alone permissible; for the carotid, ligation and aneurysmorrhaphy are the possible procedures.

This review has been necessarily hasty and incomplete, but it is hoped that it may stimulate interest in tumors and infections of the neck, and that our efforts at accurate diagnosis in this field will be increased.

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RENAL INFECTIONS.

BY WILLIAM H. ROBEY, JR., M.D., BOSTON,

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SOME years ago, I failed to make a diagnosis in a case of pyelitis seen in consultation. My examination was thorough enough except in one particular—I did not examine the urine but accepted the statement of the attending physician that it was negative. Doubtless some specimens of the urine were negative, but had a careful sedimentation been done, the pus cells would have been found and an explanation offered for the fever and chills from which the child suffered. Since my mistake, pyelitis has been much on my mind.

While the cause of much interest and writing on the part of genito-urinary surgeons, renal infection is a disease which the general practitioner should have constantly in mind since it may be mistaken for tuberculosis, typhoid fever, malaria, appendicitis or any other febrile disease. If the urine contains considerable pus, the diagnosis of cystitis may be made and the patient fruitlessly treated for this symptom month in and month out. Cystitis is generally a symptom and unless the diagnosis has been confirmed by cystoscopic examination should be classed with such meaningless terms as "indigestion" and "rheumatism," and should not be accepted as a disease any more readily than pain in the abdomen, headache or irregular pulse.

The degree of involvement of the kidney and the intensity of the infection make the disease present itself in a variety of ways. A cessation of symptoms may lead the physician to think that he has cured the disease whereas better drainage and improved health have merely held the symptoms in abeyance. It is well recognized that some cases of pyelitis involving the pelvis alone and not caused by a foreign body will recover, but others where the process is no deeper, may pass on to the chronic stage, undergoing acute exacerbations from time to time. This depends largely on whether the pelvis empties itself or not. In all cases of pyelitis where improvement is not speedy nor lasting, it is our duty to search

out the etiology by special examinations of radiography and cystoscopy.

Pyelitis is an acute febrile disease characterized by the presence of pus in the urine. Pain and sensitiveness to pressure or a feeling of pressure are often the first symptoms, although they may be entirely absent. If there is a calculus or a plugging of the ureter there may be a typical renal colic. On the other hand, if the intrarenal pressure is not much affected and the drainage good, the local signs may be entirely wanting, although the urine may show macroscopic or microscopic pus, and there may be the constitutional signs of toxemia. Several specimens of urine may not show pus when the condition is unilateral, due to temporary blocking of the ureter, and of course while this lasts it is apt to confuse the diagnosis. It is clear that repeated and careful examinations of the sediment are necessary. Along with the pain in the lumbar region one may be able to detect some swelling of the kidney by careful bimanual palpation.

Pain, sensations of pressure, swelling by bimanual palpation may be greatest when the urinary findings are smallest, because of increased intrarenal pressure and poor drainage.

The most common symptoms are chills, fever, sweats, loss of weight and strength, general physical depression and digestive disturbances. In most of the cases I have seen the two signs which have stood out apart from the general constitutional disturbance have been tenderness in the kidney and pus in the urine. Even when the symptoms are very slight, this tenderness is more or less persistent.

The pus in the urine may be readily seen or it may require careful sedimentation. There may be casts indicating a pyonephritis although casts may appear for a time when the intrarenal pressure is great. On the other hand, there may be a pyelonephritis without the presence of renal elements.

The organisms responsible for the infection are the colon bacilli in the great majority of cases. R. M. Smith quotes Jeffries (*Quarterly Med. Jour.*, 1911, iv, 267) in a report of 121 cases, 67 were colon, 37 staphylococci, 10 streptococci, 3 pneumococci, and 4 miscellaneous. Channels of infection need not be considered more than to say that it may be an ascending infection by the ureter, although this source is doubtful, or the kidney may be involved through the lymphatics in the course of a general infection.

The treatment of pyelitis depends upon early diagnosis, which in turn depends upon a determination of etiology. Etiological factors are roughly divided into two groups: first, those that lower the resistance of the kidney by producing retention of urine by trauma or pressure congestion; second, by infection, direct, metastatic or ascending. Many of the acute cases recover spontaneously, while the chronic forms may resist all treatment. If there is not a prompt response to medical treatment a thorough search should be made for the reasons.

Pyelitis is a disease which may require medical or surgical treatment or both, and it is the duty of the practitioner to his patient and himself to determine the proper course as soon as the facts will permit.

Prophylaxis is very important:—

1. Remove, if possible, all causes of urinary stasis, such as urethral stricture, phimosis or hypertrophied prostate. Actual bladder tumors, ulcers or foreign bodies, can be discovered only by the cystoscope.

2. Care in catheterization, especially where catheterization must occur frequently, as in typhoid fever and after severe labors.

3. Flushing the kidneys in severe febrile diseases and in pregnancy.

4. Raising the general resistance of the patient.

5. In children, especially since many more cases occur in girls than boys, care should be taken during the diaper age.

If the condition becomes chronic a bacteriological search should be made and the urinary tract examined by the radiograph and the cystoscope. These examinations are safe only in the hands of experts since the technic and the interpretation of the findings are difficult.

Treatment is a broad subject from an etiological standpoint, but with the source of the infection defined it narrows down considerably. Some laboratory men who are enthusiasts in the use of vaccines believe that they have cured an occasional case, but in offering the treatment they certainly hold out very little encouragement. In the few cases in which I have tried them the results have been nil. Lyman (*North-west Med.*, 1911, iii, 31) says that vaccines are of great value, but adds "many cases do not improve more rapidly than others without it."

In the acute cases there seems to be the greatest uniformity of opinion that the urine should be made alkaline and kept so for a considerable period of time and that free diuresis should be established. Colon bacilli are believed to develop less easily in an alkaline urine and phagocytosis of the bacilli by the leucocytes is more active in an alkaline medium. (Dick, *British Med. Jour.*, 1910, ii, 1134.)

Potassium citrate or sodium bicarbonate are the drugs most commonly used for this purpose.

Betz (*Deutsch. Arch. f. Klin. Med.*, November, 1912) is directly opposed to this view, and believes that the thin, weakly acid urine occurring normally in pyelitis is the most favorable culture medium for the colon bacillus but that it is unable to proliferate in a very acid, concentrated urine. He gives phosphoric acid and a meat and non-vegetable diet in order to make the urine strongly acid, limits the intake of fluids and gives hot air baths to produce concentration.

Calomel, ammonium and sodium benzoates, sandal wood oil, salol and urotropin are among the drugs recommended. Whatever is used, the antiseptic should be changed frequently. The action of hexamethylenamin depends upon its

liberation of formaldehyde, and it has been shown that this occurs only in an acid urine. Some combine hexamethylenamin with alkalies like potassium citrate, thus producing unsatisfactory results.

Raising the general health of the patient is important as in all other infections.

If by cystoscopy and radiography, tuberculosis, abscesses, foreign growths, calculi or a hydronephrosis are found, then the treatment becomes surgical.

The following cases occurred in hospital and private practice:—

CASE 1. S. T., 55 years, married. Entered the hospital, June 15, 1914.

P. H.—Negative. No early diseases remembered. Cough for last two years "caused by a tickle in the throat"; no sputum. Bowels regular.

P. I.—For the last two years spells of coughing, with "dry heaves" in the morning.

Began to be tired all the time and to have pain in the legs. The bowels became irregular. No pain at any time in the abdomen, but for the last three months has had distress in the epigastrium after a heavy meal. About the same time discovered a mass in the left lower quadrant which seems to vary in size, but on the whole not to be growing larger. Belly often full of gas. For seven or eight weeks there has been a severe aching pain across the lower part of the back at night. Slight dyspnea on exertion. The urine was "milky"; stains the sheets yellow and "starches" them. Lately has felt better. Three years ago weighed 135 pounds, now 116.

P. E.—Generally negative except in the left abdomen under the costal margin there is a bulging with dullness. In this area is a tumor, size of a large grape-fruit with firm smooth edge, slightly tender on palpation with movable nodules over the surface. Tenderness in the left costo-vertebral angle. Liver and spleen not palpable. On deep inspiration the upper edge of the mass could be differentiated from the spleen. Temperature was never higher than 99° F.

The tumor remained unchanged by moving the bowels with oil enemata. White count, 18,000. Hg., 85%.

Urine: Generally pale, average sp. gr. 1.008; albumin ranging from absent to a slight trace. Every sediment showed considerable numbers of leucocytes and cystoscopy showed a large amount of pus. The Wassermann was triple positive.

The diagnosis of infected kidney was made at once. From the age of the patient with loss of weight and strength, malignant growth was considered, but after a few days in the hospital the general improvement was marked. There was no cachexia. Operation was necessary, but whether for pyonephrosis, hydronephrosis or calculus was not clear. At operation the kidney was found to be increased to about three times its normal size and was trabeculated with many cavities filled with a pea green pus, having a sweetish, not unpleasant odor. These were the pus cavities which we felt as nodules before operation. In the lower pole was found a calculus. Unfortunately the pus was not studied bacteriologically. The patient made a good recovery.

CASE 2. A. M., entered about the same time, 19 years, unmarried, a stitcher. *P. H.* was good, no tubercular history.

P. H.—Morbili; parotitis as a child. Fleeting pains in the shoulder and other joints at times. Micturition four or five times in the day and one to four times at night. No burning.

P. I.—Five weeks ago awoke in the night to find that the left shoulder was tender, hot and painful on motion. It became worse during the following days, but there were no constitutional symptoms. Four weeks before entrance had a sudden sharp pain in the left hip, not radiating, followed by a steady dull pain, which has persisted. Two weeks ago a swelling on the outer aspect of the left arm, which broke down two days ago and pointed. Eight years before the right knee became painful and stiff, and after a week was operated on at the Children's Hospital.

P. E.—Negative except for abdominal tenderness in left lumbar region and costo-vertebral angle. No tumor made out; liver and spleen not felt.

Left thigh held flexed and motion limited by pain due to pull on abdominal muscles. No ankylosis nor tenderness in hip joint. No edema. Knee-jerk present on the right. Fluctuating tumor in upper third of left arm, not connected with the shoulder joint. White count, 18,000 to 22,000. Average temperature in the morning 99° F., 102° in the evening.

Urine in each examination showed a trace of albumin, occasional hyaline and granular cast; many red and white cells. The x-ray examinations of left hip and arm were negative.

It was thought at first that this was a tubercular hip, but the negative radiographs ruled out this possibility as well as psoas abscess, which was also considered. The pain in the costo-vertebral angle and the constant appearance of pus in the urine pointed to a kidney infection.

At operation the condition was found to be a perinephritic abscess; incision and drainage with satisfactory recovery.

CASE 3. M. W., 17 years, single; paper sorter; admitted to the Boston City Hospital, August 11, 1914.

P. H.—Negative.

P. H.—"Never sick in my life." Sore throat in winter for the past two years. Abscess of the scalp three weeks ago.

P. I.—Six days ago had anorexia, feverishness and pain in the small of the back. Buzzing in the right ear without pain. Paracentesis by a local doctor; red-tinged discharge. Diarrhea for two weeks. Since onset some burning during micturition and nocturia two or three times.

White count, 7000. Urine: pale, slightly cloudy. many pus and small round cells.

This was probably a pyelitis resulting from a general infection or a focus in the scalp or post-nasal space.

Under urinary antiseptics and rest in bed, the condition gradually improved.

CASE 4. M. J. B., 45 years, married, entered Boston City Hospital Oct. 22, 1914.

P. H.—Negative.

P. H.—Scarlatina at 7 years of age; one child 14 years ago.

P. I.—More or less irregularity of micturition since birth of child. July 5, 1914, went to bed with soreness in the right flank. Severe chills for two days followed by fever and prostration. Remained

in bed for five weeks with more or less irregular temperature and anorexia; backache and slight burning during micturition. At that time the condition had the appearance of typhoid fever, although the temperature was not characteristic and the Widal test persistently negative. After that she was up but in a state of invalidism.

I saw her in consultation Sept. 9, 1914, with Dr. H. V. Reynolds.

Except for a palpable, slightly tender, but not enlarged right kidney, the physical examination was negative. The Hgb. was 70%. White count, 10,000. The urine showed a very slight trace of albumin with moderate sediment containing pus free and in clumps and a few squamous, caudate and large round epithelial cells; very rarely a highly refractile cast and a coarse granular cast. No blood.

A catheter specimen from the bladder gave many colonies of colon bacilli. From these cultures a vaccine was made but the patient gave no signs of improvement from its use.

On Oct. 20 I saw her again and advised admission to the hospital for radiography and cystoscopy. Both of these examinations were negative. With rest in bed the general strength and digestion markedly improved. Since no pus was obtained from the right ureter during catheterization it would raise the question whether this case had gone from pyelitis to pyelonephritis, since the renal elements persisted after the intrarenal pressure was apparently reduced. As to the diagnosis of typhoid fever which was made in July, I have seen this mistake several times. Typhoid has a temperature which generally rises gradually and is then maintained, whereas the temperature of pyelitis undergoes greater excursions in the twenty-four hours. In this case the Widal test was persistently negative, while in typhoid it occurs at some stage in the disease in over 95% of the cases (McCrae).

If chills persist, as they often do in pyelitis, they should suggest some disease other than typhoid. Rose spots are very apt to appear in crops in typhoid and the mental condition becomes dull; neither appeared at any time in this patient. As to the subsequent treatment of this patient, the negative findings by special examinations make us confident in proceeding along general lines by giving urinary antiseptics and increasing the patient's tone.

CASE 5. A. G. L., 46 years, married, housewife.

P. H.—Good.

P. H.—Never very strong. In 1905 had an operation for the removal of an acute appendix and since then has had a number of attacks of so-called "inflammation of the bladder."

P. I.—In 1911 this patient had an attack of painful micturition with small amounts of pus in the sediment. With rest and the use of various urinary antiseptics the condition gradually quieted down. In September, 1912, another similar attack. There was pain in the right flank and the kidney was tender on palpation but not enlarged. The urine showed a very slight trace of albumin and the sediment contained a moderate number of pus cells. Dr. A. L. Chute saw her in consultation. He made the following report: "In the first place I could find no organisms in smears made from the sediment of the bladder urine. When there is a lot of pus, that

is suspicious of tuberculosis; when there is only a little as with Mrs. L., it may simply mean a run-out culture of some common pyogenic organism. In several slides that I used a differential stain upon, I was not able to find any acid-fast bacilli. I found a little pus coming from her right ureter; practically none from her left." "I believe her trouble comes from a dilated kidney pelvis on the right and that it constantly harbors some organisms that would be evident on culture, though I do not find them in smears. That from time to time it flares up and then she has her acute attacks with secondary involvement of the bladder and the symptoms referred to the bladder."

A few weeks prior to this attack, Mrs. L. had a cough with a doubtful area of consolidation in the third space on the right front. This, with the fact that she had lost some in weight and strength made me fear tuberculosis. Dr. Chute inoculated two guinea-pigs, one with a catheter specimen from the right kidney, the other from the left. At autopsy both pigs were entirely free from tuberculous lesions.

Dr. Percy Brown made radiographs of the kidneys; the pelves did not seem to be enlarged and there were no calculi. The only abnormality that could be found by radiograph was a slight kink in the right ureter and after the injection of collargol the pyelitis quieted down. The patient was comfortable for a little more than a year. She felt so well that she began to overtax her strength when she had another attack of pyelitis, not so severe as the one I have just described.

In this case we must follow the same line of treatment as in the one M. J. B. Having ruled out as carefully as possible conditions indicating operative treatment we are justified in planning a medical course which will as much as possible hold the infection in check.

CASE 6. C. V., 28 years; married; farm work.

P. H.—Negative.

P. H.—Difficult to obtain. Three months pregnant.

P. I.—Entered the Boston City Hospital July 11, 1914. Four days prior to entrance went to bed having a severe constant pain in the left flank. The left leg was partly flexed and could not be fully extended without causing great pain. Slight malaise but no cough, dyspnea, palpitation or edema. No nausea, vomiting or abdominal pain. Pain during micturition; rarely nocturia. The expansion of the right chest was greater than the left and there was a definite swelling with fluctuation above the left iliac crest. The urine was free of albumin and the sediment contained a few pus cells and large round cells. No blood and no casts. The morning temperature was normal, the evening averaged 104° F. This tumor increased so rapidly in size and tenderness that through a *faux pas* she was operated upon before the radiograph which showed several renal calculi was finished. A perinephritic abscess was drained and the patient was discharged relieved, having refused, much to my regret, but not my surprise, to consent to a second operation. The abscess contained green pus similar to that found in the case S. T.

CASE 7. R. R., 11 years, female; seen in consultation with Dr. Charles L. Knight. Always well, but a tall, thin, delicate looking girl.

P. I.—Very sudden onset with chills, sweating and temperature ranging between 103 and 105° F. General physical examination negative except for the most marked tenderness I have ever seen over the kidney in a case of pyelitis in a child, so marked that perinephritic abscess was considered at once. The urine was filled with pus and blood, but with the free use of hexamethylenamin the condition quieted down in a week. In four months she has had as many similar attacks much less severe. As it is, the child is in a state of invalidism and the family has objected to the more searching methods of diagnosis which Dr. Knight has proposed. Such a waste of time in making a correct diagnosis we feel to be entirely unwise.

In conclusion, a report of these infections by a medical man seems not inappropriate since practitioners are the ones who must first see them, and upon their promptness in making a diagnosis, based on a careful etiological survey, depends the outcome.

Cases of pyelitis of tuberculous origin should not be allowed to continue until the bladder is involved.

Renal infection must be considered in the differential diagnosis of every febrile affection.

The urine may show much or little according to the degree of intrarenal pressure and drainage and the condition of the ureter, so that frequent and thorough examinations of the sediment are necessary.

The two most constant signs are pus in the urine and some degree of tenderness in the kidney by bimanual palpation.

I desire to thank Dr. Arthur L. Chute for several suggestions and the other physicians mentioned for the privilege of reporting their cases.

Clinical Department.

A CASE OF HUMAN RABIES.*

By HARRY LINENTHAL, M.D., BOSTON,

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THE following case of rabies which was observed closely from the time the patient was bitten through the development and termination of the disease, presents many features of interest and a detailed report of it is justified. The patient received a full course of intensive Pasteur treatment without developing an immunity. Moreover, the quinine treatment which Harris¹ reported to have cured a case, was tried without avail in this case, equally unavailable was a new method of treatment tried.

* I am indebted to Dr. C. Frothingham on whose service in the Peter Bent Brigham Hospital the case was admitted and to Drs. F. B. Grinnell and R. Kohn of the Department of Preventive Medicine of Harvard Medical School who followed the case with me.

M. C. N., twenty years of age, was bitten by a stray Scotch collie in the left thumb while walking in the street on the morning of July 25, 1914. The wound consisted of a slight longitudinal superficial abrasion of the distal phalanx of the left thumb and a punctured wound at the root of the nail into the matrix.

The dog did not, as far as could be learned, attempt to bite any one else but remained quietly on a near-by lawn till he was shot by a police officer about two hours later. As is unfortunately too often the case, the carcass was disposed of without an examination of the brain being made.

After being bitten the patient immediately reported to his family physician, who bathed the thumb for twenty minutes in 1:1000 corrosive sublimate solution and applied a corrosive dressing. The dressing was removed on July 27 and the wound was practically healed.

Several days later the case was brought to the attention of the State Department of Health by the family, who asked that Pasteur treatment be administered. Virus was obtained from the Hygienic Laboratory of the Public Health Service in Washington and on Aug. 1, seven days after the patient was bitten, the treatment was started.

The course of the treatment was uneventful with the following exceptions: On the seventh day of the treatment there was a very slight local reaction without constitutional disturbance at the site of the first injection. This cleared up in twenty-four hours. On the ninth day there was a slight local reaction at the site of the injection of the previous day. This reaction lasted less than twenty-four hours. On the thirteenth day of the treatment the patient complained of headache and nausea. The headache persisted for several days, during which time, however, his temperature remained normal. The treatment terminated on Aug. 21 and the patient was discharged, feeling in his usual good health. He was instructed to report from time to time as to his condition so that we might keep in close touch with him. He was cautioned to avoid any excessive physical exertion, to avoid exposure to cold and alcoholic beverages.

On the afternoon of Sept. 8, eighteen days after the completion of the Pasteur treatment and forty-five days after he was bitten, he began to feel a numbness of his left thumb, which during the night extended up to his elbow; in addition to the numbness he experienced from time to time a sharp stinging pain shooting down his left forearm. An examination made on the morning of Sept. 9 was entirely negative. He appeared in his usual good health, his deep and superficial reflexes were normal, and there were no sensory disturbances in his left thumb and forearm, the site of the numbness. The subjective feeling of numbness was much less than on the previous night. He reported that since the termination of the Pasteur treatment on Aug. 21 he felt well, his appetite was good, his bowels were regular and he slept well. He was kept under observation all day but nothing developed. The next day the patient's mother reported by telephone that he had a sleepless night and that he was not feeling well generally. In order to keep him under constant observation and to have him near where he could be easily reached, arrangements were made with the Peter Bent Brigham Hospital, where he was admitted on the afternoon of Sept. 10. On admission he was found to have a slight elevation

of temperature, otherwise the examination was entirely negative.

On Sept. 11 the numbness had diminished except when the thumb where he was bitten was pressed. His neck seemed a little stiff, but with distraction of patient's attention it could be easily moved. His reflexes were normal. There were no Kernig and no other signs suggestive of meningeal irritation. Heart showed a slight respiratory arrhythmia. Slight elevation of his temperature persisted.

His urine was straw colored, acid in reaction, 1.009 specific gravity and except for a slightest possible trace of albumen was negative.

An examination of his blood showed a white count of 14,000, of which 57% were polynuclears, 26% large mononuclears, 17% small mononuclears, erythrocytes not remarkable.

On the morning of Sept. 12 the patient complained that his ears were particularly sensitive to sounds. He was distressed by the ordinary sounds in the ward so that he had to place pieces of cotton in his ears. He also complained of double vision. Examination showed marked diplopia when focusing on an object two feet away; marked nystagmus particularly when eyes turned to right. Paresis of right external rectus. All superficial and deep reflexes were present. The plantar was present on the right, on the left the normal plantar was absent but there was a contraction of the fascia lata when the sole was stimulated. There were no Babinski, Oppenheim or Gordon reflexes, no Kernig and no neck sign.

At 1.30 in the afternoon of Sept. 12, the patient had a moderate chill, there was a marked general hyperaesthesia with increased response to stimuli of all kinds. Photophobia became extreme. There was dilatation of the right pupil though it reacted to light. The muscles of the eyelids twitched continually and there were also occasional slight twitchings of the muscles of the arms, more marked on the right side. He complained of a choking sensation and began to raise large quantities of saliva. His respiration became jerky and sobbing in character and spasms of the muscles of deglutition became pronounced. He would make quite elaborate preparations before taking a drink, such as clearing his throat, changing position, etc., he would then take the water in his mouth and hold it there for several seconds; then he would make a sudden effort to swallow it, bringing on severe spasm. He was given a gram of chloral and fifteen mgms. of morphia, which quieted him somewhat.

His mind was perfectly clear during the afternoon; towards evening he became mildly delirious, was rather talkative, though well oriented.

At eight o'clock Dr. I. C. Walker administered 14 c.c. of salvarsanized serum intraspinally. Fifteen minutes later he was given 1 gm. of quinine and urea hydrochlorate intravenously. There was an immediate violent reaction to the intravenous injection, the patient's face became flushed and dusky, he broke out in a profuse perspiration and within one minute after the injection he complained of intense buzzing in his ears. His pulse became somewhat accelerated and he was distinctly uncomfortable. His condition steadily grew worse, so that in view of the intense reaction to the quinine no more was administered. About midnight he became noisy, delirious and irrational and was restrained in bed with difficulty. He had hallucinations of dogs chasing him. Several doses of morphia and atropine were given to him with little effect. The patient gradually be-

came weaker and died at 4.20 a.m. on Sept. 13 of respiratory failure.

The spinal fluid, 25 c.c. of which was withdrawn at the time the intraspinous injection was given, was slightly cloudy, forming a delicate filamentous clot on standing. There were 600 cells per cmm. of which 40% were polymorphonuclears, 20% small lymphocytes, 38% large lymphocytes and 1% endothelial cells. No plasma cells. Wassermann negative. Dr. F. B. Grinnell injected $\frac{1}{2}$ c.c. of the fluid subdurally into each of four rabbits; none of them came down with the disease.

MORTALITY FROM RABIES.

The incidence of rabies from bites of rabid animals as compiled in different statistics shows considerable variation. It depends upon the age of the person bitten, the severity of the injury and the location of the bite, the nearer the head the more likelihood of the development of the disease. From the statistics compiled by various writers it would seem that about 16-20% of persons bitten by rabid animals develop the disease.

Once the symptoms of the disease develop the termination is almost invariably fatal. Some aborted types of the disease have been reported as well as recovery after symptoms have developed, but the diagnoses in such cases have been questioned. It is safe to state that if recovery occurs the disease was almost to a certainty not rabies.

Pasteur treatment has reduced the mortality from the bites of rabid animals to about 1%. Not all deaths from rabies among those taking the Pasteur treatment, however, can be regarded as due to the failure of the treatment. The establishment of an immunity to rabies by the injection of attenuated fixed virus is a slow process requiring three weeks. Fortunately the incubation period of rabies is usually a long one so that there is sufficient time to establish an immunity. Some cases, however, have a short incubation period, and the disease develops before an immunity can be established. Such cases cannot be regarded as failure of the treatment. That certain individuals, however, will fail to develop an immunity by the treatment is shown by the occasional development of the disease long after the treatment has been completed.

In this case eighteen days elapsed between the completion of the treatment and the onset of the symptoms, a time sufficiently long to establish an immunity if the treatment were effective. This case must be regarded as one of the rare failures of the Pasteur treatment.

TREATMENT OF RABIES.

In 1913 Moon² published experimental results with the use of quinine in the treatment of rabies in dogs. Dogs to whom quinine sulphate was administered recovered from rabies while those who did not get the treatment died from the disease.

In October of the same year Harris¹ reported a case of human rabies which recovered after the intravenous administration of quinine and urea hydrochlorate. The experimental results of Moon have not been confirmed by Frothingham and Holliday and by Cummings. Nor has quinine proved efficacious in two cases of human rabies reported since the publication of Harris's report. The case reported here must be added to the other cases unsuccessfully treated with quinine.

Salvarsan and neosalvarsan have been used unsuccessfully in the treatment of the disease. As far as I can find, this was the first time salvarsanized serum was used intraspinally, but unfortunately with no success.

PUBLIC HEALTH ASPECT OF RABIES.

I have had the opportunity to see two cases of human rabies within a few months. The case not here reported I saw in the terminal stage of the disease. The patient, a man of 45, was bitten by a dog six weeks previous to the development of the symptoms. The dog was killed by a police officer and the carcass disposed of without an examination being made. No Pasteur treatment was given.

To see a case of human rabies is sufficient to make one wish never to have to see another one. The pity of it all is that this most horrible of diseases is preventable. What can be accomplished by preventive measures can be seen by what has been achieved in Australia and England, where by the simple muzzling of dogs the disease was entirely eradicated.

In the nine-year period 1905-1913 inclusive, twenty-five deaths from rabies have been reported in Massachusetts. We must assume the responsibility for the inexpressible physical and mental suffering of those afflicted, for the agonizing states of mind of the families and friends of the victims, and for the anguish and anxiety of those bitten who undergo the treatment. This dreadful disease exists with our consent and its victims die with our approval.

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Medical Progress.

REPORT OF PROGRESS IN MENTAL DISEASES.

PART I.

By HENRY R. STEDMAN, M.D., BROOKLINE, MASS.

PARAPHRENIA.

UNDER this head Kraepelin¹ separates from dementia precox a new group, still employing the

criterion of the final outcome. He says that in dementia precox the disorganization of the psychic personality affects chiefly the affective life and will. The paraphrenic group, a small one, in spite of manifold points of accord with the manifestations of dementia precox yet has far less influence upon the affects and will, and consequently results in much less disturbance of the inner character of mental life. The main disturbance here is with the intellectual functions. These patients even in the last stages do not show the affective dulness and indifference which represent so frequently even the earliest signs of dementia precox. The actions and conduct are in the essence affected only by the abnormal trend of thought and mood. "Independent disturbances of the will," which tend to accompany dementia precox in such manifold form (e.g., mannerisms, impulsive acts, stereotypies, etc.), occur here only exceptionally.

(1) *Paraphrenia Systematica*, characterized by the insidious onset of steadily growing delusions of persecution, with later ideas of grandeur but without destruction of personality. The disease takes years to develop; ideas of reference and sense-falsifications play a considerable part in its evolution. The delusions are well systematized and may be accompanied by memory falsification. There seems to be no end-stage as the disorder continues progressively throughout life. Recovery does not occur, but it is especially emphasized that there is no loss of interest.

The close resemblance of this picture to that described by others under the title of paranoia needs but little emphasis. In speaking of the relation of paranoia to dementia precox Kraepelin claims that there can be no difficulty in distinguishing between the two because of the absence in the former of any evidence of independent disturbances of will or of signs of affective deterioration. This distinction seems hardly to hold good with regard to paraphrenia systematica and we must await the appearance of the volume dealing with paranoia for enlightenment.

(2) The *expansive type* characterized by the rich development of grandiose ideas, generally with heightened mood and some slight excitement. This is an extremely interesting, though small, group composed almost entirely of women, and the cases have hitherto been usually classed with the manic-depressive disorders, as was done by Kraepelin himself, or with paranoia. The disorder is of slow progressive evolution and like the last, reaches no end-stage and presents little or no loss of interest.

(3) *Confabulating form*, very similar to the last, but characterized by the development of very marked memory falsifications.

(4) *Paraphrenia Phantastica*. Under this name are included the small group of cases originally classed as dementia paranoids. They are characterized by the development of the most phantastic and incoherent delusions. Beliefs are elaborated and maintained which seem to surpass

the boundaries of possible credence. In this type again evidences of disorder of affect and will are more or less absent.

The separation of these types of "paraphrenia" from dementia precox is based upon the absence of affective and volitional deterioration and also upon the progressive course which seems to lead to no final end-stage. The step is unquestionably consistent with Kraepelin's general principle that the end-results represent the character of the disease process and it has the further advantage of removing some of the difficulties experienced by those who regard dementia precox as a destructive brain disease. With Kraepelin we must be content to await further study to determine the justice of the step, and so long as we do not allow ourselves to be entangled in the enticing web of exact classification and regard dementia precox, paraphrenia and their various subtypes as established disease entities we may be grateful for the clear delineation of clinical facts.

THE ABDERHALDEN TEST IN MENTAL DISEASE.

Simon² takes up the claim of Fauser as to the findings of the Abderhalden test in certain types of insanity with special reference to dementia precox. In surveying the literature one cannot help being impressed, on the one hand by the wonderful uniformity of the results reported by Fauser and the wide divergence from those of certain other authors, like Hauptmann and Bumke. He thinks that there is good ground to suspect that Fauser was too enthusiastic in his views and also that his opponents may have lacked complete control of the technic. Fauser himself states that he obtained reaction with sex gland repeatedly in cases in which it was unexpected and that the diagnosis between manic-depressive insanity and dementia precox could not always be made with certainty. Simon relates his own experience with the use of the test in 106 cases and says, "to summarize the results" that a sex gland reaction may be obtained in nearly if not all cases of dementia precox at some stage or another, but that this action may also be obtained in other forms of insanity, and does not attempt to explain them. He must, therefore, conclude that Fauser's rule has exceptions or that the positive findings in manic-depressive insanity or paresis are due to errors of diagnosis or technic. The fact, however, remains that in dementia precox the positive reaction is the rule, while in the purely functional psychoses it is the exception. Simon, therefore, discusses at length the technic employed and which he thinks meets fairly any criticism from the technical point of view as far as our knowledge goes at present. He believes, however, that advances can still be made, and while we cannot, as yet, draw positive conclusions regarding the significance of the reaction in dementia precox, certain possibilities suggest themselves. One of these is that of a secretion of the sex glands in dementia. "Consid-

ering the problem from the clinical side, the all-important question of course suggests itself, whether or not the reaction has any relation to the pathogenesis of dementia precox. Theoretically, this is, of course, perfectly possible. Granted that anti-sex gland ferments do occur in the circulation in dementia precox, and that their presence was the outcome of the appearance in the circulation of an abnormal secretion or of abnormal cells, then we may also assume that digestion of these cells or cell-products will take place, and that all conditions would thus be given for a chronic protein intoxication which might very well expend itself on the central nervous system. Should this be true, then we might also expect that the administration of sex gland to such patients would cause an aggravation of the patient's condition, while partial or entire castration, possibly combined with the transplantation of normal organs, might similarly be expected to have a beneficial influence. Evidently, the problem is now open to investigation from many sides, and it does not seem unreasonable to expect that definite advances will be achieved in the near future."

Orton,³ concluding a careful critical digest of the literature bearing on the Abderhalden method, reviews the situation as follows: Many defense enzymes are reported in cases of organic psychoses which are not found in normal controls or in any number in the strictly functional psychoses. In the great majority of dementia precox cases the ferments reported are those against brain or the sex glands, or the two combined. When sex gland reactions occur they follow a strict sex-specificity, *i.e.* male sera react to testicular extracts, but not to ovarian and vice versa. In a smaller number of cases of dementia precox thyroid dysfunction, either by itself or associated with brain and sex gland, is recorded. Cases do occur, however, in considerable numbers in which these so-called characteristic reactions are lacking and the same reactions have been found in other psychoses, notably general paralysis, and, by one investigator, in idiocy. This in itself he considers sufficient to preclude considering the test as of great value as a diagnostic means, until further refinements of technic or larger series of carefully studied cases have been reported. The application at present to border-line cases for the purpose of diagnosis or the altering of clinical diagnosis on the ground of serological findings seems unjustifiable, as the clinical study of the case must still be considered the means of control of the specificity of the reaction. Further studies should include also better classification of cases than simply dementia precox, and preferably short abstracts of the clinical features of the case. The results of one or two investigators seem to indicate that variations may occur in different stages of the disease, *i.e.* negative reactions in terminal cases and differences between the various types.

Even if we accept the theory and the results

of the most hopeful investigators, we are only brought to the beginning of a wider field of investigation, as by the interpretation of the theory the results speak only for a faulty metabolism in specific organs and as yet give no light on the underlying causes, *i.e.* the fact that the metabolism of the testicle and brain are disturbed gives no insight into the cause of such disturbance.

THE COLLOIDAL GOLD REACTION IN EXAMINATION OF THE CEREBROSPINAL FLUID.⁴

The importance of the colloidal gold reaction, otherwise known as Nonne's or the gold chlorid test, has been recognized for some time, but until recently few have known within what limitations its value lay. It is essentially a test for an increase in the globulin content of the cerebrospinal fluid, using delicate color reactions in a standardized solution of colloidal gold as an indicator. The requisites for the test are cerebrospinal fluid obtained without a trace of blood, scrupulously clean glassware, and a colloidal gold solution prepared with extreme care. With these essentials at hand the performance of the test is comparatively simple. Miller and Levy⁵ give explicit directions for preparing the solutions and performing and interpreting the results, together with an extended series of observations in which the results of the Wassermann test on the blood and cerebrospinal fluid, cell and globulin estimation on the fluid and the colloidal gold reaction are compared in a great variety of clinical conditions. These tables show that normal cerebrospinal fluid gives negative reactions, but that in inflammatory conditions of the meninges, as tuberculous and purulent meningitis, the test is positive; hence it is of no value in distinguishing between these and syphilis. The reaction is inconstant in secondary and tertiary syphilis, and has no advantages over other diagnostic procedures in these conditions. The evidence seems to show that colloidal gold reaction is most constant in general paresis and hence will be found of most value in the differentiation of this condition from others with which it might be confused. The authors suggest that this test may be found more sensitive than others now employed for indicating the results of specific therapy in syphilitic diseases of the central nervous system. The report is an example of what should be done with every new procedure either curative, prophylactic or diagnostic. Tests should be made in large numbers of diverse conditions and conservative conclusions drawn from the results as to the value and limitations of the procedure in question.

THE CATATONIC SYNDROME AND ITS RELATION TO MANIC-DEPRESSIVE INSANITY.

Kirby⁶ states that according to Kraepelin, all non-organic cases with catatonic symptoms belong to the dementia precox group, and such

manifestations were looked upon as significant of a deterioration process. Kraepelin, of course, admits that about 13% of the catatonics appear to recover, but the permanency of these recoveries he regards as unsettled, and inclines to the view that they are probably only remissions. Wilmans later reviewed Kraepelin's own Heidelberg cases, and found the catatonic symptoms, as evidence of a deterioration process, had been greatly overrated.

The catatonic syndrome is not a clinical unit, and it is probable that deteriorating and non-deteriorating catatonic cases represent fundamentally different reaction types. A review of a large material has shown that in acutely developing catatonic states, when not preceded by any ominous prodromal symptoms, recovery, with few exceptions, takes place, and in some instances after a duration of several years.

The possible relation of these acutely developing catatonic states in relation to manic-depressive insanity is discussed, because the subsequent history of such cases shows not infrequently manic attacks. Four such cases are described. The most reliable prognostic data in all these cases are gained from a close study of the personality, and the mode of development of the psychosis.

The author believes that Kraepelin overvalued catatonic manifestations as evidence of a deteriorating psychosis, and that many such cases have served to swell unduly the dementia precox group.

CLINICAL EXAMINATION OF THE MENTAL STATE OF DEMENTS.

Ballet and Genil-Perrin⁷ have worked out a very practical scheme for the examination of the mental state in cases of dementia. It is essential for comparison of cases that some scheme should be adopted and regularly utilized, and the one here elaborated in detail appears very applicable to the task in hand. The authors analyze five different mental functions in their patients *viz.*, affectivity, attention, memory, association of ideas, general activity. Each of these is in turn subdivided, and suitable tests are devised for the examination of each. The results are expressed in figures, and thereby a graphic representation of the patient's mental condition at any given period is obtained.

DEMENTIA PRECOX AND THE THYMUS.

Ebbell⁸ presents evidence which seems to demonstrate a connection between some primary anomaly or acquired disorder of the thymus and the development of clinical symptoms of the dementia precox type. The pathologic anatomic findings in dementia precox, he continues, seem to be identical with those found in animals after partial destruction or total removal of the thymus. This assumption of thymus insufficiency as the cause of dementia precox harmonizes with

the observation of its hereditary nature and with the influence of acute infectious diseases and the abuse of alcohol. When the dementia precox develops in childhood there may be some congenital deformity of the thymus. Attempts to treat animals and human beings with thymus extract or in substance have given no results. This is but natural, Ebbell remarks, as an artificial chemical mixture or devitalized tissue is unable to do the work of the living thymus. Transplantation of thymus tissue seems the only encouraging prospect, and progress must be sought along this line, although Klose and Vogt have reported disappointing results in two dogs. Scraps of thymus tissue were implanted in the omentum and spleen of two thymectomized dogs, but were all absorbed in time.

THE REFLEXES IN DEMENTIA PRECOX.

Borel,⁹ from an examination of twenty-three cases came to the following conclusions: (1) In two-thirds of the cases the tendon reflexes were exaggerated and the cutaneous reflexes diminished. (2) With the exception of Pilez's sign, which was present in 78%, the oculo-pupillary reflexes were too inconstant to be of any value. (3) In 82% Leri's reflex was negative or asymmetrical. (4) Disturbances of the reflexes in dementia precox do not depend upon the clinical variety of the disease, but occur indifferently in every form of it, and do not appear to be affected by states of depression or of excitement. (5) Similar disturbances of the reflexes do not occur in mania or melancholia. (6) Disturbances of the reflexes in dementia precox seem to harmonize with the probability of the lesions being situated in the higher nerve centres, lesions which have been observed by numerous authors. (7) The presence of Pilez's sign and the absence of Leri's reflex in association with the disturbances of the reflexes mentioned (*vide* 1.) may be of considerable value in the diagnosis of dementia precox.

GENERAL PARALYSIS AND PREGNANCY.

Lavergne¹⁰ gives the histories of seventeen cases, three of which are original, and comes to the following conclusions: (1) Pregnancy is rare in general paralysis. (2) Pregnancy may occur at any stage of general paralysis, and appears to accelerate the course of the disease, and sometimes to aggravate the symptoms. (3) In rare cases there is improvement or disappearance of the symptoms. (4) Delivery is followed sometimes by aggravation of the disease, but usually by a transient remission. (5) Pregnancy as a rule goes on to full term. (6) Labor is very often painless, and is in most cases very rapid. (7) The infant is usually normal. (8) Abortions, premature births, or births of children with syphilitic symptoms or malformations are rare.

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- ⁴ Miller and Levy: Bull. Johns Hopkins Hosp., 1914, Vol. xxv, p. 133.
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(Concluded next week.)

Reports of Societies.

MASSACHUSETTS MEDICAL SOCIETY.

WORCESTER DISTRICT MEDICAL SOCIETY.

A regular meeting of the Worcester District Medical Society was held in G. A. R. Hall, Worcester, November 11, 1914, under the Chairmanship of Dr. F. H. CLAPP. The meeting was well attended both by members and invited guests. The paper of the afternoon was read by Dr. WALTER D. BIEBERBACH, the title being

THE STORY OF VENEREAL DISEASES.*

The report of the Committee on Control of Venereal Diseases was then presented by the chairman, Dr. FREDERICK H. BAKER, who said:

Mr. President, Ladies and Gentlemen:

In accordance with instructions from the Society at its last meeting your committee has caused 350 circulars and reply cards to be mailed to the physicians of Worcester and to the physicians in the 46 towns represented in this Medical Society. From the 350 communications we received 143 replies, 107 from the city and 36 from the towns, *i.e.* about 40% replied.

The circular was as follows:

COMMITTEE ON CONTROL OF VENEREAL DISEASES.

October 31, 1914.

DEAR DOCTOR:

Syphilis and Gonorrhea are among the most common and dangerous of communicable diseases. Countless numbers are yearly being infected, innocently and otherwise, resulting in untold physical suffering and vast waste of money, both private and public.

Practically nothing has been done to control these diseases. For this reason, this committee desires to ascertain the prevalence of these diseases in our community, and to make a beginning in an effort to control them. We ask your earnest co-operation in this work.

To show briefly the enormity of this evil the following statistical evidence is given.

* See JOURNAL, page 201.

Syphilis infects about 5-10% of the adult population.
 Syphilis causes about 20% of all insanity.
 Syphilis causes about 10% of epilepsy.
 Syphilis causes many of the idiotic and feeble-minded children.

Syphilis causes most cases of locomotor ataxia, many brain lesions and many spinal cord diseases.

Syphilis causes most early apoplexies and many late ones.

Syphilis causes very many cardio-renal diseases.

Syphilis is to be looked for in many "indefinite ailments."

Syphilis causes much infant mortality and many abortions.

It is the one *great hereditary disease*.

Gonorrhea causes more than 10% of blindness.

Gonorrhea causes a very large percentage of the pelvic operations upon women.

Gonorrhea causes about one-half of all cases of sterility.

Gonorrhea causes much joint disease and other septic conditions.

Practically all prostitutes are infected with one or both of these diseases.

Please fill out the enclosed question card and return before November 8th, 1914. The results of this inquiry will be presented at the next regular meeting of this Society to be held Wednesday, November 11th, 1914, at 4.15 p. m. in G. A. R. Hall, 55 Pearl St., Worcester, to which you, whether a member or not, are cordially invited.

COMMITTEE.

"A tabulation of the answers shows the following:

"Question 1. How many cases of Syphilis in any state do you know of? The total number reported in the City of Worcester was 1508, in the towns 188, making in all about 1700 cases.

"Question 2. How many cases of Gonorrhea in any stage do you know of? In Worcester, 984 and in the towns 256, a total of 1240 cases.

Question 3. Do you favor having the Worcester Board of Health do free Wassermann tests for syphilis and free tests for gonorrhea? In Worcester 93 answered 'Yes', 4 answered 'No', 7 answered 'Yes' conditionally, and 3 passed this question. In the towns 35 answered 'Yes' and 1 'No'.

Question 4. Do you favor having the City Hospital establish a special service for the hospital and out-patient treatment of venereal diseases? In Worcester 81 answered 'Yes', 15 answered 'No', 7 answered 'Yes' conditionally, and 4 made no answer. In the towns all 36 said 'Yes'.

Question 5. Do you favor making syphilis and gonorrhea reportable diseases either by name or number? In Worcester 60 answered 'Yes' without comment, 21 'Yes, by number', 1 'Yes' conditionally, 17 said 'No', 8 made no reply. Thus it is apparent that about 80% in Worcester are in favor of some method of reporting these diseases to the Board of Health. In the towns 14 answered 'Yes' without comment, 14 'Yes, by number', 1 'Yes' conditionally, 5 answered 'No' and 2 were undecided.

"These answers are certainly instructive and indicate clearly that the medical men of this city and county are in favor of attacking this venereal problem. While the figures on the number of cases of syphilis and gonorrhea are not definite,—in fact being far below the actual number, for if 40% of the physicians in Worcester report about 1500 of one and nearly 1000 of the other, the remaining 60%

could doubtless report as many more, not to mention the great number treated by druggists, quacks, and by advertised remedies—enough have been reported to show the great prevalence of venereal disease in this community and to warrant an organized effort for their suppression.

"As to means for the medical control of these diseases it is evident from the answers that about 95% of the physicians responding favor such an aid to the early and definite diagnosis as would be afforded by a laboratory for free Wassermann tests for syphilis and tests for gonorrhea, and that they approve of the work being done by or under the direction of the Board of Health.

"Nearly as many, i.e. about 85%, are in favor of the City Hospital establishing a special service for the care of venereal diseases where those unable to pay for treatment privately might obtain proper care during the communicable stage of the diseases. It has been shown that two or three weeks' vigorous treatment will render an active syphilitic practically innocuous to others, while neglected, as is so often the case, it may remain active for months, endangering many.

"As noted above about 85% favor making the diseases reportable. This would enable the authorities to form a correct estimate of the prevalence and the economic and social influence of the disorders, as well as affording a means whereby the careless or viciously indifferent patient could be controlled.

"The information concerning the great prevalence of venereal diseases in our community furnished us by these question cards moves your committee to strongly recommend the following measures for the beginning of the work of attacking them in this city: (1) That the Board of Health establish a laboratory for the free testing for syphilis and gonorrhea. (This could be done for the present at little expense by effecting an arrangement with City Hospital where Wassermann tests have been done for nearly a year.) (2) That Worcester City Hospital establish a department of venereal diseases for both bed and out-patient treatment, the latter to be open one evening weekly. (3) That syphilis and gonorrhea be made reportable diseases—at present by number, as board of health records are now public property and open to inspection. (4) That the present status of the venereal diseases calls for education both of the medical profession and the adult lay population.

"Respectfully submitted by the Committee.

"CLARA P. FITZGERALD, M.D.

"MICHAEL F. FALLON, M.D.

"HOWARD W. BEAL, M.D.

"KENDALL EMERSON, M.D.

"FREDERICK H. BAKER, M.D."

In the discussion which followed Dr. EDW. H. TROWBRIDGE, chairman of the Worcester board of health said that he could vouch for the readiness of all members of the board to advance any effort to control or limit venereal diseases in Worcester. He thought there might be considerable question as to the best method of attacking them. He also pointed out the need of instructing the young before they came to the age of opportunity, that it is better to prevent than to attack it after it is contracted. He spoke of the neglect of parents to fortify the minds of their boys and girls against these dangers before sending them away to school or college and intimated that it might be a proper function of the school physician to instruct in these matters.

DR. ERNEST V. SCRIBNER, superintendent of the Worcester State Hospital, said that the subject was of special interest to him as syphilis was so large a factor in filling our asylums, jails and almshouses. He believes in taking whatever measures promise mitigation of present conditions. At the State Hospital they have been taking Wassermanns for two years, sending the bloods to Harvard Medical School. For purposes of comparison they have sent bloods from 109 cases simultaneously to the Medical School and to Worcester City Hospital laboratory. Reports from the two places agreed in all save the following:

- 4 doubtful at H. M. S. were positive at C. H.
- 1 negative at H. M. S. was positive at C. H.
- 5 doubtful at H. M. S. were negative at C. H.

He therefore thinks it safe to infer that the work at the local laboratory is as reliable as at the other and in certain instances more accurate, the possibility of deterioration in transportation being less. He feels that the City should provide for free tests and that the Society can do no greater good than to assist the committee in the work.

REV. DR. VINCENT E. TOMLINSON, speaking for the pastors present, said that they appreciated the courtesy of the Society. The two professions have much in common, the physical and moral health of the community being interdependent. The initiative in a movement of this sort should come from the medical profession who are closer to the problems and well informed. He approves of letting in the light and is sure the churches will do what they can to help. He cited a case of an innocent death from one of these diseases.

Mr. Fred L. Willis, Secretary of the Worcester Y. M. C. A., said he was much impressed by the force of the problem. He told of how the Y. M. C. A. tried to meet it by lectures to adults and heart-to-heart talks to boys. The trouble is that boys and girls don't know what they are up against. He believes that they can be taught to control passions and that that is the basis of the control of the diseases, i.e. the upbuilding of moral character. Mr. Wilder, the physical director, has been doing it with thousands of boys. The Y. M. C. A. is ready to help.

Dr. A. W. MARSH also emphasized the educational side of the problem, citing a sad case of an innocent infection from a supposedly cured case. He then offered a motion "That the Committee on the Control of Venereal Diseases confer with Worcester Board of Health and with the trustees of Worcester City Hospital to make arrangements with them, if possible, to carry out the recommendations reported by the committee, and furthermore that the committee be authorized by this Society to begin a campaign of education on this subject among adults."

The motion being seconded was unanimously passed by the Society. The Campaign of Education prescribed by that vote is now being organized after the following plan: To send from our ranks lecturers of authority and recognized conservatism of both sexes to speak before subordinate church organizations, parents' associations, lodges, civic organizations, etc., as we may be able to approach them. While these lectures are studiously to avoid the spectacular, it is our intention fully to expose to those having understanding, the spectre of venereal disease to the end that we may have the intelligent co-operation of the public in our program of medical control and of stimulating the inculcation of sound morality in the rising generation by parents, clergy and teachers.

ERNEST L. HUNT, Secretary.

Book Reviews.

Annual Report of the Surgeon-General of the Public Health Service of the United States for the Fiscal Year 1914. Washington, D. C.: Government Printing Office. 1914.

This report by Dr. Rupert Blue, Surgeon-General of the United States Public Health Service, records the activities of that service for the fiscal year ended June 30, 1914. This is the forty third annual report of the service in the one hundred and sixteenth year of its existence. The principal topics dealt with are administrative organization, scientific research, maritime and domestic quarantine, sanitary reports and statistics, marine hospitals and relief, personnel, publications and needs of the service. Especial emphasis is laid on pollution of the Great Lakes and their tributary rivers as a serious menace to public health. About sixteen million passengers are carried annually in sixteen hundred vessels over these waters, which are used by them for drinking purposes. Dr. Blue believes that this fact has an important part in the maintenance of the relatively high typhoid fever rate of the United States and recommends that all water from the Great Lakes should be purified before being used for drinking. There is also great necessity for rural sanitation in the prophylaxis of typhoid. Attention is also called to the adverse report of the committee on the so-called Friedman treatment of tuberculosis, and to the investigation of Von Ruck's treatment now in progress. Among the needs of the service Dr. Blue notes the desirability of an increase in the number of its officers and of its clerical assistants; of an additional building for the use of the hygienic laboratory; and of appropriations for the collection of morbidity statistics and for the publications of the service. Three appendices contain a financial statement, statistical tables and a statement of surgical operations for the year.

A Manual of Diseases of the Nose, Throat and Ear. By E. B. GLEASON, M.D., LL.D., Professor of Otology in the Medico-Chirurgical College; Aurist to the Medico-Chirurgical Hospital; Surgeon in charge of the Nose, Throat and Ear Department of the Northern Dispensary; formerly one of the Laryngologists of the Philadelphia Hospital. Illustrated. Third edition. Thoroughly revised. Philadelphia and London: W. B. Saunders and Company. 1914.

The second edition of this book was reviewed in the JOURNAL of May 18, 1911. This edition has been in many places revised to correspond with the progress of the last few years. It is not intended to be exhaustive, but to furnish a convenient text-book for students and practitioners. In most subjects it is clear, compact and conservative.

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ACTION OF THE ASSOCIATION OF ANATOMISTS REGARDING COLLEGE WORK IN PREPARATION FOR HUMAN ANATOMY.

At the meeting of the American Association of Anatomists held in Philadelphia in 1913, a committee consisting of Drs. H. McE. Knowler, F. T. Lewis, and W. H. Lewis was appointed "for the purpose of standardizing the courses in biology required in premedical courses and leading to the study of anatomy." The American Society of Zoölogists was requested to co-operate in this matter, and promptly responded by appointing a committee, consisting of Profs. H. B. Ward, G. H. Parker, and C. E. McClung, "to confer with the committee from the American Association of Anatomists on the subject of premedical education." These committees have examined the published statements of courses and the many discussions of this subject, and have sought the opinions of representative members of both societies.

The committees agree that it is of the first im-

portance to urge the selection of only thoroughly trained scientific men as teachers of the preparatory work. Such men can be trusted to insist on real scientific methods, and to select the best material and treatment to give the beginner a practical introduction and basis for further work. Beyond this point, however, the committees were unable to proceed. The Zoölogists suggested that the Anatomists should draw up a statement of what they desire the Zoölogists to do in preparing students for anatomy. After this had been done, the Zoölogists were ready to consider how far it is practicable to meet these needs. Accordingly the committee of the Anatomists presented such a statement to their Association at its recent meeting in St. Louis. It was unanimously adopted, and was referred to the joint committee for further action. The statement is as follows:

At the present time a one year's course in biology is generally required as a preparation for the work of the medical school. This study of biology must serve as a preparation for medical work in physiology, bacteriology and parasitology, as well as anatomy, and it may fairly be questioned whether a single college course is adequate for this purpose. The study of botany alone is obviously insufficient, and the domain of zoölogy is so vast that much care should be exercised in the choice of those phases of the science to be presented to young students. Courses which are primarily experimental and deal with the functions and reactions of animals, although excellent in preparation for the physiological work of the medical school, are not the proper basis for the study of human anatomy. It is the purpose of this report to point out only those features of the college preparation which experience has shown to be desirable, and in fact essential, for the successful study of gross and microscopic anatomy.

No uniform or stereotyped preparatory course is recommended, for it is recognized that every teacher should give special attention to those subjects and groups in which he is particularly interested, and to the knowledge of which he has contributed by his own researches. Success depends in large part upon the ability of the teacher, but the following purposes of instruction should not be forgotten if the preparatory work is to satisfy the requirements of anatomy.

1. Students frequently begin the study of human anatomy with an insufficient knowledge of the lower forms of animal life. The broad

knowledge of the various classes of animals and of invertebrate and lower-vertebrate morphology, which was the inspiration of the great anatomists of the past, is now too often replaced by vague considerations of the method of science and ideals of observation. A return to the study of animals, as objects of interest in themselves, apart from theoretical considerations and possible relations to human society, is therefore recommended. The student should obtain a synoptic knowledge of the animal kingdom, and should be able to classify in a general way and to describe the life histories of the common forms of animals, aquatic and terrestrial, which may be collected in his locality. A beginning in such work may well be made by the student independently, or perhaps in high-school courses, but such fragmentary and elementary studies should be supplemented by a thorough college course. The first-hand familiarity with animals should serve as the basis for all further work.

2. As a result of the knowledge of genera and species which the student should have obtained directly for himself by studying some group of animals or plants, questions of the origin of species and of the relation of the great classes of animals to one another, are inevitably before him as philosophical problems. Collateral reading then becomes as necessary for the biologist as for the man of learning in any other branch of knowledge. Selected works of Lamarck, Darwin, Huxley, Mendel and others, should be freely consulted. This literature, which in its influence upon human thought has far outspread the bounds of biology, should not be neglected by the students of zoölogy, whose particular heritage it is. Since the idea that science cannot be read, and that there is no knowledge in books, is often taught as a cardinal principle, it has come about that students of zoölogy have little knowledge of, or respect for, the writings of the makers of their science.

3. Before beginning the study of human histology, every student may reasonably be expected to be familiar with the use of the microscope and with the simpler methods of preparing specimens for microscopic examination. This technic can be learned in connection with various courses, perhaps the most useful of which is a general study of the cell with a comparative study of the elementary tissues. The maturation of the germ cells and the processes of fertilization and segmentation cannot be properly presented in the medical curriculum, and

these fundamental biologic phenomena should therefore be observed in college courses. The development of the chick, which was studied primarily by physicians to explain the growth of the human embryo, can likewise receive little attention in the medical school. These subjects are all very desirable in themselves, and if studied by laboratory methods, will supply the requisite skill in the use of the microscope.

4. In preparing for human dissection, comparative anatomy should be studied with the same standards of thoroughness which obtain in the dissecting room. The student should learn to dissect rapidly and well, and to record with careful drawings and brief descriptions the forms and relations of the structures which he has disclosed. But such studies are not useful merely for their methods. A knowledge of comparative anatomy, including especially the anatomy of the lower vertebrates, is indispensable for understanding the structure of the human body. For other reasons also, human anatomy must be treated as an advanced study. The State does not provide bodies for dissection in order that untrained students may learn from them those elementary facts which may be understood equally well by dissecting cats or rabbits. "It is absurd," says President Eliot, "to begin with the human body the practice of dissection." And the value of dissection is so great in relation both to medicine and surgery, that an adequate preparation should be required. For the study of anatomy, in the words of Lord Macaulay, "is not a mere question of science; it is not the unprofitable exercise of an ingenious mind; it is a question between health and sickness, between ease and torment, between life and death."

5. Finally, these recommendations may be summarized as a plea for a more thorough study of zoölogy on the part of those planning to enter the medical schools. The zoölogical courses should not be abridged and popularized in order that time may be saved for other pursuits, or that the science may seem more attractive to college youth. Courses in anatomy and physiology which duplicate the work of the medical school, and courses in "medical zoölogy" ought not to be substituted for the strictly zoölogical university courses. The science of zoölogy is of such great service to students of medicine that it deserves a large place in their undergraduate studies. With medical anatomy, it constitutes

'a subject essentially one and indivisible'; and the penalty for its neglect is inadequate preparation for medical practice.

REORGANIZATION OF THE BOSTON BOARD OF HEALTH.

THE proposed reorganization of the Boston Board of Health, after a long period of discussion, was finally effected, in its legislative aspects, at a meeting of the Boston City Council on January 30. The change had been opposed by certain political interests but was advocated by the Mayor, the corporation council and numerous physicians. At various of the preliminary hearings, also, had been read letters approving the reorganization from the Norfolk and Suffolk Districts of the Massachusetts Medical Society, the Boston Milk and Baby Hygiene Association and the Boston Association for the Relief and Control of Tuberculosis.

The reorganization actually effected consists in the replacement of the present health commissioner of three members by a single health commissioner who will control seven administrative departments in place of the nine now in existence. Under him there will probably be two deputy commissioners, each of whom will have charge of one of the departments. These deputies are to be appointed by the health commissioner. The seven divisions are to be denominated as follows: medical, sanitary, food inspection, quarantine, laboratory and child hygiene divisions, and a division representing a consolidation of the clerical divisions, so that vital statistics work will be included. This eliminates the present divisions of communicable diseases, disinfection, dairy inspection, and inspection of milk and vinegar.

This reorganization is based on a principle similar to that underlying the recent reorganization of the Massachusetts State Board of Health, —the principle of administration by a highly paid, responsible expert controlling an efficient system of graduated subordinates. It is needless to say that this reorganization of the municipal health board, like that of the state health board, is a cause of gratification to the medical profession. The older forms of health board organization were adequate in their time, but have become incompatible with modern conditions, which require more highly specialized methods of action.

Boards of health first came into being as committees of safety to meet emergencies when epidemic diseases broke out. By natural evolution, these committees became permanent and developed into our present boards of health. It is quite as unwise to manage the health affairs of a large community by a board of health, as it would be to place the command of an army in the hands of a board of generals.

The Boston Board of Health has had a long and honorable record. The changes now effected in the health organization of the city are not on account of criticism of the work of the board, but because boards of health, as such, are relics of the past and have outgrown their usefulness. Economically, a board of health is wasteful, for there are several salaries to pay instead of one. From the standpoint of efficiency, a board is clumsy and makes for divided authority. Most large cities have long ago established their health organization upon modern lines, headed by a commissioner of health. In this way authority and responsibility are centered in one trained official and business is facilitated. The commissioner of health should be the administrative officer and be held responsible for the execution of the health laws and ordinances. He should have an advisory council, public health council, or board of health; such board or council, however, to have no administrative functions, but to be purely advisory, with semi-legislative and quasi-judicial powers.

With the reorganization of the Boston Health Commission thus accomplished in legislation, it remains that a highly efficient and competent expert should be judiciously selected to fill the important office of health commissioner. This selection should be made purely on the basis of merit without regard to political or other considerations.

PROSTITUTION AND VENEREAL DISEASE.

IN another column of this issue of the JOURNAL, Dr. Walter D. Bieberbach reviews the perennial problem of prostitution, venereal diseases, and their prophylaxis. It might seem that there were little new to be said on this insurmountable question, yet Dr. Bieberbach interestingly recapitulates its history, and stimulative criticizes some of the solutions of it which have been

proposed. Venereal diseases he rightly assumes to be a manifestation of prostitution. For the benefit of humanity their control is earnestly to be desired. Yet any measure must be regarded as purely palliative which does not aim at removal of the cause. Doubtless palliative measures are often temporarily advantageous, but they should not be considered ultimate.

Prostitution, as a phenomenon of modern life, represents a reversion to the primitive physiologic condition of sex promiscuity. Early in its evolutionary experience the human race discovered, unconsciously, that such promiscuity is inconsistent with the higher interests with which it was becoming concerned. It therefore established marriage as a substitute. Under good conditions this substitute is effective; but unfortunately conditions are seldom universally good. As a matter of fact, civilization in its progress provides numerous economic and other deterrents from marriage, particularly among the young, with the natural result that in many cases prostitution recurs to afford satisfaction for the biologic instinct.

The real and ultimate remedy for prostitution and venereal disease is the removal of the causes from which they spring. Of these we have mentioned but one. No single measure of control or prevention is going to solve this archaic problem overnight; but perhaps it may fairly be considered that the civilization which shall succeed in improving the conditions surrounding marriage, and in encouraging and making possible early marriage among the young, instead of discouraging and tempting away from it, will have gone far towards the eradication of prostitution, venereal disease, and all their attendant evils.

MASSACHUSETTS STATE HEALTH DEPARTMENT.

WITH the advice and consent of the advisory council, Dr. Allan J. McLaughlin, Massachusetts State Commissioner of Health, has completed the organization of his administration by the following nominations, which have been approved by the Governor and the Executive Council. These appointments are as follows: Dr. Milton J. Rosenman, pathologist; Dr. Eugene R. Kelly, of Seattle, Wash., director of communicable diseases; I. H. Goodnough, chief engineer, director of the division of sanitary engineering; H. W. Clark,

chemist, director of the division of water and sewerage laboratories; William C. Hanson, director of the division of record and accounts; Hermann C. Lythgoe, director of the division of food and drugs.

From the medical point of view these appointments are cordially to be approved. The appointment of Dr. Rosenau to this position has necessitated his resignation as a member of the recently organized public health council, but it is felt that his services will be of greater importance to the community in the former than in the latter position.

One of the deficiencies which has already appeared in the structure of the act establishing the new department of health is the failure to provide penalties for violation of its regulations. A bill to remedy this defect has been introduced before the General Court providing a maximum fine of \$300 for violation of regulations made by the department. On Feb. 2 this bill was discussed in committee, where it was advocated by Dr. McLaughlin, Dr. Enos H. Bigelow, Dr. Walter P. Bowers and Dr. A. K. Stone, and opposed by the representative of the Massachusetts State Grange. It is obviously desirable that this piece of legislation should be passed.

MISCELLANEOUS MATTERS OF MEDICAL LEGISLATION.

SEVERAL miscellaneous matters of medical legislation are at present pending or have been recently dealt with in national and state legislatures. At Washington, on January 28, Congress defeated a bill to increase, by about \$46,000, certain salary allowances in the United States Public Health Service. It was pointed out in the discussion of this measure that in times of peace this service is even more arduous and dangerous than that of the army and navy medical service, and that its members therefore deserve correlative compensation. Attention was called to the casualties suffered by the officers of the public health service within recent years.

"Five of the officers of this service within recent years have contracted tropical dysentery while in line of duty. In the Revenue Cutter Service an assistant surgeon on board one of the revenue cutters in Alaskan waters was drowned while seeking to afford medical relief to a light-house keeper. One died because he was infected with spotted fever while seeking to bring relief

to the people of Montana. Within a period of five years four officers contracted typhoid fever in line of duty and two of them died from that disease. Eleven officers have contracted tuberculosis in line of duty and three of them died from this disease. Twenty officers have contracted yellow fever in line of duty and six of them died of this disease. It is a hazardous service; more hazardous than the Army or Medical Corps in times of peace, and because of the exposure to which these officers are subjected in cases of epidemic and in treating contagious diseases these men should have the same consideration that corresponding officers should have in the army and in the navy."

Comment was also made on the work of the Public Health Service in studying and dealing with malaria, yellow fever, trachoma, uncinaria-sis and small-pox. In spite of the merits of the bill, however, it was unfortunately defeated, largely through considerations of economy.

Another disappointment in medical legislation was the recent vetoing by Secretary Bryan of a plan for the purchase of a modern vessel for the United States Navy to replace the hospital ship *Solace*. It had been announced that the sum of approximately \$2,000,000 was available for the purchase and equipment of such a ship. Of the need of a new hospital ship there can be no question since the *Solace* is an antiquated vessel of only 3300 tons. Even in the small Mexican War of last April the United States naval forces suffered from the inadequate hospital facilities. A suitable steamship of the Ward Line had even been selected, and Dr. Theodore W. Richards, U.S.N., detained to superintend her conversion into a hospital ship. The reason alleged by the Secretary of State for inhibiting this undertaking is fear lest other nations might consider that the United States was thereby preparing for war.

Several minor matters of medical legislation have been under consideration before committees of the Massachusetts General Court during the past week. Before the committee on social welfare, Dr. David Snedden, commissioner of education, advocated the establishment of special schools for children with defective eyesight. Another bill provided an appropriation of \$2500 for making an investigation into the care and relief of the blind not now provided for. Chief Justice Bolster of the Boston Municipal Court advocated a bill authorizing the court to secure medical service for its criminal business at a cost of not more than \$6000 annually. The committee favorably reported this bill and the bill au-

thorizing the Massachusetts Commission for the Blind to establish defective eyesight classes and make an investigation with respect to persons with defective eyesight.

Before the committee on public health Dr. Marion C. Burroughs advocated a bill requiring the removal of noxious weeds from the roadsides in Massachusetts twice a year as a preventive of hay fever. The committee voted to report a resolve to have the state department of health investigate the subject and report to the next legislature. The committee reported adversely on a bill to provide better sanitary conditions in public toilet rooms.

MEDICAL NOTES.

NATIONAL RADIUM INSTITUTE.—Report from Washington, D.C., states that on Jan. 27 the sum of 171 milligrams of radium bromide, valued at over \$11,000 was placed by the United States Government in the hands of Dr. Howard E. Kelly, Baltimore, for use at the National Radium Institute. This radium was extracted from the original ore in Colorado by a new and simplified process developed in the laboratory of the Federal Bureau of Mines at Denver.

MEDICAL BEQUEST.—The will of the late Mrs. Eliza McMillan, filed in the probate court at St. Louis, Mo., on Jan. 25, creates a trust fund based on a contingent bequest of over \$1,000,000 for the ultimate establishment of a hospital in connection with Washington University, to be known as the McMillan Eye, Ear, Nose and Throat Hospital. This hospital may be established as a separate department of Washington University, or may be administered under the direction of the medical department of the school. The bequest is contingent upon the death of the testatrix's only son without issue.

INSANITY IN NEW YORK.—The report of the State Hospital Commission of New York submitted last week to the general assembly at Albany, shows that during the year 1914 6,289 new cases were sent as patients to public hospitals for the insane in that state. During the same period 1677 former patients were re-admitted to these institutions. The total number of insane in the State of New York dependent upon state care is now 33,357, and the annual cost of their maintenance is \$6,729,126.

EUROPEAN WAR NOTES.—A piece of correspondence from the Associated Press dated at London on Jan. 3, and published in the *New York Times* on Jan. 31, indicates a serious shortage of physicians in Great Britain:—

"So serious is the impending shortage that the Royal Army Medical Corps is advising medical students who volunteered for hospital service to return to their schools, on the ground that it is their duty to qualify for their degree as soon as possible.

"Previous to the war the National Insurance act had relieved the profession of overcrowding by absorbing a large number of physicians to inspect and look after insured workers. War has since drawn away so many from home practice that civilian doctors are now scarce, overworked, and high-priced.

"Death has been busy among the Medical Corps men at the front no less than among the line officers. As a result, it is now proposed to take the doctors out of the trenches, leaving the first-aid work to the ordinary Hospital Corps men. The wounded may then be taken to the rear for further treatment."

On Feb. 5 the total of the New York Belgian relief fund amounted to \$896,670.79; the New York Red Cross fund to \$450,689.26; the American Ambulance Hospital fund to \$322,257.85; the Prince of Wales relief fund to \$107,846.63; the Committee of Mercy fund to \$100,746.91; the French relief fund to \$57,522.34; and the American Polish relief fund to \$18,741.52.

On Feb. 6 the total of the New England Belgian relief fund amounted to \$193,399.96; the Massachusetts Red Cross fund to \$108,573.42; the Boston branch of the American Ambulance Hospital fund to \$52,976.45; the Boston Jewish relief fund to \$32,011.92; the American St. George fund to \$19,892.86; the Boston Polish relief fund to \$17,657.38; and the Lithuanian national relief fund to \$10,184.24.

EPIZOOTIC OF FOOT AND MOUTH DISEASE.—On Jan. 26 the sum of \$2,500,000 became available, through President Wilson's signature of an urgent deficiency appropriation bill, to reimburse farmers for the loss of their cattle slaughtered by Government orders during the recent epidemic of foot and mouth disease. In Illinois the sum of \$600,000 will be paid for 36,758 animals killed. The total number killed in Pennsylvania was 17,896 and in Ohio 10,111. The total number killed in all states up to Jan. 1 was 101,111, including 46,268 cattle and 47,735 swine. The total cost of the epizootic to the Government thus far has been \$2,129,138.

On Jan. 27 a few new cases of the disease were found in the Union Stock Yards at Chicago, which have been again disinfected. By a new Federal ordinance effective on Feb. 1, no liable live stock susceptible to foot and mouth disease may be shipped from points within any of the quarantine area to points in a free area. This order affects territory in Delaware, Illinois, Indiana, Maryland, Michigan, Montana, New York, Pennsylvania, Virginia and Wisconsin. On Feb. 1 also four counties in Kansas,—Butler, Cowley, Sedgwick and Sumner,—were quarantined against foot and mouth disease by the

United States Department of Agriculture on account of infection brought by cattle from Wisconsin. On Feb. 2 the quarantine in Maine and Vermont was virtually raised by an order permitting cattle from these states to be brought to Massachusetts for immediate slaughter at establishments under federal inspection. On Feb. 3 two new cases of the disease were discovered at Springfield, Mass.

BOSTON AND NEW ENGLAND.

SOCIAL HYGIENE.—On Jan. 29 Dr. Hugh Cabot spoke at the January meeting of the Longfellow Home and School Association in Roslindale, Mass., on "Social Hygiene as the Result of an Educated Public Opinion."

FIRE AT TEWKSBURY HOSPITAL.—On Jan. 30 a fire in one of the storage buildings of the State Infirmary at Tewksbury, Mass., destroyed property to the value of \$2000 and necessitated the removal of three hundred patients to other quarters.

EPIZOOTIC OF HOG CHOLERA.—Report from North Grafton, Mass., on Jan. 31, states that an outbreak of hog cholera has occurred in that town, and 88 infected pigs have been slaughtered.

MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH.—At the recent annual meeting of the Massachusetts Association of Boards of Health held in Boston, addresses were made by Dr. Lewis Chargin of the New York Department of Health, Dr. F. H. Baker of the Worcester Board of Health and Mr. Michael M. Davis, Superintendent of the Boston Dispensary. The following officers were elected for the ensuing year:—

Prof. Milton J. Rosenau, Harvard Medical School, president; Prof. George C. Whipple, Harvard University, first vice-president; Dr. A. L. Jones, North Adams, second vice-president; Dr. F. H. Slack, secretary; Dr. F. G. Curtis, Newton, treasurer. New members of the executive committee: Dr. A. S. McKnight, Dr. F. X. Mahoney, Dr. F. H. Thompson, R. L. Newcomb, and Dr. F. G. Wheatley.

TRANSFER OF BOSTON QUARANTINE STATION.—At the organization meeting of the new city council of Boston on Feb. 1, Mayor Curley reintroduced the proposed ordinance for transferring the Boston Quarantine Station from local to federal control. On Feb. 3 it was stated that the Committee of the Chamber of Commerce has voted to reverse its previous decision and to approve the transfer.

NOTIFIABLE DISEASES IN MASSACHUSETTS.—On Dec. 15, 1914, the following diseases were declared by the State Department of Health to be *Dangerous to the Public Health* and so report-

able by law. Householders and physicians must now give immediate notice to the local board of health of all cases of:—

Actinomycosis.	Leprosy.
Anterior poliomyelitis.	Malaria.
Anthrax.	Measles.
Asiatic cholera.	Mumps.
Cerebro-spinal meningitis.	Pellagra.
Chickenpox.	Plague.
Diphtheria.	Rabies.
Dog-bite (requiring anti-rabic treatment).	Scarlet fever.
Dysentery:	Septic sore throat.
a. Amebic.	Smallpox.
b. Bacillary.	Tetanus.
German measles.	Trichinosis.
Glanders.	Tuberculosis (all forms).
Hookworm disease.	Typhoid fever.
Infectious diseases of the eye:	Typhus fever.
a. Ophthalmia neonatorum.	Whooping cough.
b. Suppurative conjunctivitis.	Yellow fever.
c. Trachoma.	

Attention is called to the fact that in accordance with the provisions of Chapter 670 of the Acts of 1913, notice of cases of any disease declared by the State Department of Health to be dangerous to the public health shall be given in such manner as the State Department of Health may deem advisable. On Dec. 15 it was voted that such notice shall be given by physicians on postal cards supplied to physicians by the local board of health with the complete list of such diseases printed thereon for their information.

HOSPITAL BEQUESTS.—The will of the late Mrs. Joel Goldthwait, who died in Boston recently, contains a bequest of \$50,000 to the Robert Bent Brigham Hospital for Incurables, to constitute a fund to be known as the Joel and Ellen Goldthwait research fund, the income to be used for investigation to increase the knowledge of chronic diseases. Additions of \$10,000 have already been made to this fund. The will also contains bequests of \$1000 each to the Sharon Sanatorium, the Children's Island Sanatorium at Marblehead, and the Noble Hospital at Westfield, Mass.

BALDWINVILLE HOSPITAL COTTAGES.—The recently published thirty-second annual report of the corporation of the Baldwinville (Mass.) Hospital Cottages records the work of that institution for the past year. There has been an average of 105 patients.

"Thirty-one patients were dismissed during the year—twenty-one boys and ten girls. Seven recovered or the disease was arrested; fifteen were much improved; seven showed slight improvement; only one went away in the same state of health as when he entered, and one died. The entire number of cases treated within the year was 134. The Boston committee, Miss Edith H. Sears, chairman, has received funds for the support of eight beds for the entire year and one

for nine months. The Woman's Board contributed \$1699.78 toward the schools, free beds and general expenses, which included new boiler-room and additional water-supply equipment."

RING SANATORIUM.—The recently published tenth annual report of the Arlington (Mass.) Health Resort records the work of this institution and of the thirty-fifth year of the Ring Sanatorium during the past year. During the year ended June 1, 1914, 171 patients were under treatment and five pupils were graduated from the Training School.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending Feb. 2, 1915: Diphtheria, 52, of which 1 was non-resident; scarlatina, 56, of which 2 were non-resident; typhoid fever, 4; measles, 77; tuberculosis, 40, of which 1 was non-resident. The death-rate of the reported deaths for the week was 15.99.

Current Literature

MEDICAL RECORD.

JANUARY 16, 1915.

1. PETERKIN, G. S. *Scientific Knowledge Logically Applied to Acute Gonorrhea in the Male Urethra.*
2. HEAD, J. *Vaccines in Relation to Mouth Infections.*
3. MCSWEENEY, E. S. *Are We Getting Proper Value from Our Plant and Expenditure for the Tuberculous?*
4. DEROULET, A. *The Occupational Factor in Diseases of Women.*
5. HAGEMANN, J. A. *Some Ocular Manifestations of Aural Disturbances and Their Interpretation.*
6. WEINSTEIN, J. *A Clinical Report of the Successful Use of Emetine in the Control of Hemorrhage Following Nasopharyngeal Operations.*
7. ROMEO, P. *The Romco Three-bladed Uterine Curette.*

JANUARY 23, 1915.

1. FISCHER, C. S. *The Sympathetic Nervous System and the Gastro-Enteric Functions.*
2. FULLER, E. *Surgery of the Seminal Vesicles: Remarks in Reply to Criticisms.*
3. MORRIS, R. T. *What Do We Mean by "The Unfit"?*
4. VON RUCK, S. H. *Prophylactic and Therapeutic Immunization Against Tuberculosis; Its Possibilities and Limitations.*
5. LEWISOHN, R. *A New and Greatly Simplified Method of Blood Transfusion.*
6. DICKEY, W. A. *Myocardial Changes Following the Acute Infectious Fevers.*
7. JOHNS, M. W. *Modern Roentgen Technic in the Treatment of Malignant Conditions.*
8. JUNOR, K. F. *Twilight Sleep in the Home.*
9. COLEMAN, J. *Nasal Tuberculosis.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JANUARY 23, 1915.

1. *HOLT, L. E., AND BARBITT, E. C. *Institutional Mortality of the New Born: A Report on Ten Thousand Consecutive Births at the Sloane Maternity Hospital.*

2. *COUGHLIN, W. T. *Sarcoma of the Tongue: A Study of the Published Cases, with Reports of Two New Cases.*
3. KOLL, I. S. *The Experimental Effect of the Colon Bacillus on the Kidney.*
4. NEILL, W., JR. *Exposure of Appendix by Cullen's Method. A Simple Way of Removing an Adherent Retrocecal Appendix Through the Ordinary Gridiron Incision.*
5. *KAIN, H., AND GORDON, L. E. *The Use of Pituitary Extract as a Coagulant in the Surgery of the Nose and Throat.*
6. EMERSON, L. *Operations for Clefts of the Hard and Soft Palate.*
7. THOMAS, H. B. *So-Called Congenital Scoliosis with Specimen, Including the Thorax.*
8. *PECKHAM, F. F. *Fracture of Both Bones of the Leg.*
9. MACAUSLAND, W. R. *Ankylosis of the Elbow, with Report of Four Cases Treated by Arthroplasty.*
10. COTTON, F. J. *A New Type of Ankle Fracture.*
11. TIMME, W. *The Automatic Reciprocal Activities of Brain and Viscera.*
12. FISCHER, M. H. *Relation Between Chlorid Retention, Edema and "Acidosis."*
13. LEVISON, L. G. *The Occurrence of Edema from Large Doses of Sodium Bicarbonate.*
14. CASSELMAN, A. J. *Unheated Vaccines.*
15. ARNOLD, H. D. *The Problems of Graduate Medical Instruction.*
16. *CURTIS, G. H. *The Treatment of Hemorrhage by Injection of Blood.*
17. JONES, L. W. *Double Detachment of the Retina as a Sequence to Nephritis.*
18. KINNEAR, T. J. *Intra-Urethral Breakage of Vacuum Electrode.*
19. CULVER, G. D. *An Instance of Pulmonary Syphilis Closely Simulating Tuberculosis.*

1. Holt and Babbitt's interesting analysis brings out the following points of practical interest in 10,000 cases: The deaths in the hospital during the first 14 days were 3% of the living births. For half this number prematurity was responsible; 48% of the total deaths and 66% of those due to prematurity occurred on the first day. Congenital weakness and atelectasis together made up 58% of the total deaths. The mortality from conditions intimately connected with delivery—accidents of labor, hemorrhage, sepsis and asphyxia—together made up but 20% of the deaths of the first 14 days. Malformations and congenital diseases other than syphilis caused 4% and syphilis 4%. The only important disease developing after birth was pneumonia. Stillbirths must be reckoned as one of the large problems in infant mortality; they are one and a half times as many as the deaths from all causes during the first two weeks. Except for the larger rôle played by syphilis, the causes of stillbirths differ in no way from those which produce death during the first days of life. The number of deaths from congenital weakness can be reduced only by care of the mother during her pregnancy. The number of stillbirths and deaths from causes connected with parturition can be largely reduced by good obstetrics.

2. Coughlin finds that 4.9% of all cases of sarcoma of the tongue are congenital. Of the non-congenital, 3.2% were found in children under one year of age. No cases are reported between the ages of four and fourteen years; 11.7% occur between 10 and 20 years or 19.6% occur in patients under 20 years. The disease is hence not more common in the earlier years of life. The largest number comes in the fourth decade or 27.4%. Males predominate, the disease occurring nearly twice as frequently in males as in females. In at last 16% a history of previous injury was obtained and may be a causative factor. The right side and near the base seems to be the most common situation. The round cell type predominates. The article is a good one.

5. These authors find that the hemorrhage following nasal and throat operations is much reduced, especially in operations on the turbinates, by the hypodermic administration of pituitary extract, which materially reduces the coagulation time of blood. Blood pressure was increased in 61% and decreased in 39% of cases.

8. Peckham shows how a simple traction apparatus will often accomplish perfect reduction of a fracture of both bones of the lower leg without open operation. The method is certainly worthy of trial before operation is considered.

16. Curtis believes that subcutaneous injection of whole human blood in repeated doses in practically all hemorrhagic conditions is equally as valuable as transfusion. [E. H. R.]

JANUARY 30, 1915.

1. *RUBINOW, J. M. *Social Insurance and the Medical Profession.*
2. WHEELER, H. L. *A Method of Obtaining Dental Service in Hospitals by the Appointment of Internes.*
3. ALLSON, N., AND BOWLES, B. *Ankylosis: An Experimental Study.*
4. *NEWELL, F. S. *The Blood Pressure During Pregnancy, Based on Observations on Four Hundred and Fifty Cases from the Records of the Committee in Charge of Prenatal Work Carried on by the Woman's Municipal League of Boston.*
5. POLLOCK, L. J. *Hypopituitarism in Chronic Hydrocephalus.*
6. FARRELL, B. P. *Hills' Osteoplastic Operation for Pott's Disease. A Report of Clinical Observations with Results in One Hundred and Fifty-Eight Cases and Interpretation of Experimental Studies in Animals.*
7. JACOBS, C. M. *Observations on Bone Transplantation (Albee Method) for the Cure of Tuberculous Spine Disease.*
8. SUTTON, R. L. *The Symptomatology and Treatment of Seborrheic Keratosis.*
9. HORSLEY, J. S. *Transplantation of the Anterior Temporal Artery.*
10. LEWIS, D., AND GRULEE, C. G. *The Pylorus after Gastro-Enterostomy for Congenital Pyloric Stenosis. A Report on Its Condition Two Hundred and Fifty-Six Days Following the Operation.*
11. *BEEBE, S. P. *The Serum Treatment of Hyperthyroidism.*
12. EVANS, J. S., AND MIDDLETON, W. S. *Endamebic Pyorrhea and Its Complications. Preliminary Note.*
13. *WEIL, R. *Sodium Titrate in the Transfusion of Blood.*
14. ELOESSER, L. *Repair of Defects in Blood Vessels by Free Grafts of Fatty Tissue.*
15. QUAID, A. T. *The Need of Detailed Sputum Reports.*
16. DANFORTH, W. C. *Strangulated Epigastric Hernia.*
17. CADWALADER, W. B. *Progressive Lenticular Degeneration. Report of a Case with Necropsy.*
18. MCNEIL, H. I. *Syphilitic Ulcer of the Stomach. Report of a Case Examined Histologically.*
19. STIMSON, G. W. *Breakage and Removal of Eustachian Applicator.*
20. NELSON, A. *Prostatic Abscess Opened Through the Cysto-Urethroscope.*

1. Rubinow's article is very well stated, and of much interest to the profession. It should be read.

4. Newell's article is also one of much value. It shows the great value of repeated blood pressure examinations during pregnancy. Cases with a constant pressure of from 100 to 130, who did not show albumen, with one exception, had normal pregnancies and developed no signs of toxemia. Cases with pressure lower than 100 are apt to be in poor general condi-

on and show shock at the time of labor. Those with pressure over 130 and in whom albumen appears are very liable to develop signs of toxemia.

11. Beebe makes a careful review of the whole subject of his antiserum for the treatment of hyperpyroidism, giving his theories as to its action, its reparation, and type of cases in which it is most suitable and the results. He considers 50% of 3000 patients cured in so far as they are able to meet the ordinary demands of life, 30% were somewhat benefited and 20% remained unrelieved.

13. Weil advocates the use of sodium citrate in proportions of 1 c.c. of a 10% solution in water to each 10 c.c. of blood, in transfusion. This avoids immediate clotting, and transference of blood can be made readily with a syringe in the hands of anyone without especial experience. [E. H. R.]

THE JOURNAL OF EXPERIMENTAL MEDICINE.

DECEMBER 1, 1914.

RUSSELL, D. G. *The Effect of Gentian Violet on Protozoa and on Tissues Growing in Vitro, with Especial Reference to the Nucleus.*

WALTON, A. J. *The Effect of Various Tissue Extracts upon the Growth of Adult Mammalian Cells in Vitro.*

NICHOLS, H. J. *Observations on Experimental Typhoid Infection of the Gall Bladder in the Rabbit.*

ZINSSER, H., AND DWYER, J. G. *Proteotoxins (Anaphylatoxins) and Virulence.*

HITCHINGS, F. W. *A Method of Counting the Actual Number of Purkinje Cells Present in a Given Area of Cerebellum and Its Application in Ten Clinical Cases.*

*CHICKERING, H. T. *Agglutination Phenomena in Lobar Pneumonia.*

UHLENHUTH, E. *Cultivation of the Skin Epithelium of the Adult Frog, Rana Pipiens.*

6. Chickering studied the agglutinins in a series of cases of lobar pneumonia. No agglutinins were demonstrable in the blood of patients suffering from infection with the pneumococcus mucosus. In most severe and fatal cases of lobar pneumonia due to the other pneumococci, agglutinins could not be demonstrated. When the agglutinins were demonstrable they appeared usually about the time of the crisis and persisted from one day to several weeks. [R. I. L.]

JANUARY 1, 1915.

OPPIE, E. L., AND ALFORD, L. B. *The Influence of Diet upon Necrosis Caused by Hepatic and Renal Poisons. Part I. Diet and the Hepatic Lesions of Chloroform, Phosphorus, or Alcohol.*

OPPIE, E. L., AND ALFORD, L. B. *The Influence of Diet upon Necrosis Caused by Hepatic and Renal Poisons. Part II. Diet and the Nephritis Caused by Potassium Chromate, Uranium Nitrate or Chloroform.*

*PETROFF, S. A. *A New and Rapid Method for the Isolation and Cultivation of Tubercle Bacilli Directly from the Sputum and Feces.*

*AUER, J. *The Functional Effect of Experimental Intraspinal Injections of Sera with and without Preservatives.*

LEWIS, P. A., AND MARGOT, A. G. *The Function of the Spleen in the Experimental Infection of Albino Mice with a Bacillus Tuberculosis.*

*FLEXNER, S., NOGUCHI, II., AND AMOSS, H. L. *Concerning Survival and Virulence of the Microorganism Cultivated from Poliomyelitic Tissues.*

3. Petroff describes a simple and rapid method for the cultivation of tubercle bacilli from the sputum and feces. The method depends largely upon addition of gentian violet to an egg-beef-julice medium. Posi-

tive cultures were uniformly obtained from all specimens of sputum, from all stages of tuberculosis. Positive cultures were occasionally obtained from sputum which had previously been positive for tubercle bacilli but were negative at that time by direct microscopic examination. The results from the feces were not so constant.

4. Auer discusses in an exhaustive fashion the intraspinal injection of sera and its dangers. He believes that the dangerous alterations of respiration and blood pressure are apparently largely due to increased intraspinal pressure rather than to the preservative drugs. He suggests that ether, which could be removed before injection, might well be a better preservative than chloroform or trichlorol. As general precautions he advises that when intraspinal injections are given in human beings the operator should be prepared to withdraw part of the injected fluid and to administer artificial respiration.

6. Flexner, Noguchi and Amoss found that the minute microorganism cultivated from poliomyelitic tissues survives and maintains its pathogenicity in cultures for more than one year. [R. I. L.]

Correspondence.

PERSONAL AND SURGICAL CLEANLINESS.

Boston, January 21, 1915.

"Beauty is Truth, Truth Beauty, that is all
Ye know on earth and all ye need to know."

"It hardly seems necessary to impress upon intelligent people the importance of personal cleanliness, for with such it is a matter almost of instinct. There is in every civilized community an all too large proportion of individuals who never bathe and who regard a bath as a positive danger to health, as every physician who has had experience as a hospital interne or in practise among the ignorant poor can abundantly testify." (Harrington and Richardson, "Hygiene.")

Mr. Editor: Is personal hygiene the propaganda of sentimentalists or is there any scientific basis for keeping clean?

Almost the first and certainly one of the most striking arguments ever laid down for personal cleanliness is that of our own Dr. Oliver Wendell Holmes in his original contribution to the subject of puerperal fever.

The discovery of the germ theory of disease followed by antiseptics and then asepsis revolutionized medicine in the prevention through personal cleanliness of all types of sepsis. Is asepsis a matter for the operating room only? Is it not a valuable asset to the individual whose environment brings him continuously in contact with all kinds of disease? What is asepsis but the epitome of the doctrine of personal cleanliness? Hospital gangrene, infected wounds, and general infections originating therefrom, may be practically eliminated by rigid attention to one's personal cleanliness.

In the realm of every-day life it is an accepted fact that persons taking daily cold baths enjoy a virtual immunity from common colds. Is not this a strong argument for the use of water, especially when we consider the whole train of sequelae, in sinuses, ears, and respiratory tract which may follow a cold?

For the infant, bathing is more generally regarded as an essential factor to health. It is only the adult on whom a modicum of filth as a covering is considered innocuous. Pfaunder and Schlossman in "Diseases of Children" state categorically "The proper care of the skin is absolutely essential to healthy development. . . . Daily bathing is necessary from birth."

Dr. White in his little book on "The Care of the Skin" emphasizes this still more strongly as the most important factor in preventing eczema in infants.

Hoffman states that "bathing is more nearly a panacea for human ills than any other known agent." Assuredly in the realm of skin diseases an ounce of prevention in the form of soap and water is worth a pound of cure. Impetigo, many forms of eczema, pediculosis, scabies, ringworm, tinea versicolor, syphilis, seborrhea and a host of others including acne and furunculosis are in the vast majority of cases prevented by rigid habits of cleanliness from birth. Dr. White again emphasizes the importance of cleanliness in writing of furunculosis: "Sterilize the skin by frequent warm baths in which plenty of soap is used, . . . cleaning the skin is all important in stout people. . . . Take particular care where the hair grows; wear clean clothes."

In the matter of baldness, next to the influence of heredity Dr. White calls attention to the need of frequent and thorough washing of the head from birth, rigid asepsis in the use of toilet articles, advocating strongly the carrying of one's own brush and comb to the barber's and making him observe personal cleanliness. The incidence of baldness in men may be largely due to infections conveyed from person to person through the medium of barbers.

Thompson, in his recent authoritative work on occupational diseases distributes printed slips to workmen such as the following:

"A full hot bath should be taken twice every week, soaking and soaping the body well. If the occupation has involved exposure to irritant dusts, vapors or fumes, the body should be sponged with warm water and well rubbed every night before going to bed. . . . Workers who are exposed to the fumes of molten metals should be afforded facilities for daily shower baths before going to their homes."

For the prevention of lead poisoning: Personal cleanliness must be had. Wash with warm water and soap daily—always before eating—and take at least one full hot bath a week."

Some of the other diseases largely controlled by personal hygiene are glanders, poisoning with antimony, arsenic, brass, chromium, copper, lead, mercury, platinum, silver, carbon, bisulphid, phosphorus, carbolic acid, hydrofluoric acid, picric acid, chinin, metol, nitroglycerine, paraffin, phenolhydrazin and tar.

Care of the teeth is nothing more than bodily cleanliness and our present growing knowledge of the dangers of general infection from dental foci adds one more argument to the importance of personal hygiene in preventive medicine.

If there is any rationality in promoting the activity of the skin as an excretory organ in such diseases as chronic nephritis, there must be some rationality in keeping one's skin clean even with healthy kidneys.

It is now known that "contact" infection plays a very much greater rôle than "air-borne" infection in spreading the bacterial diseases. We should, therefore, expect that personal hygiene would play an important part in prevention. On this point Rosenau writes: "Personal prophylaxis in tuberculosis consists in avoiding infection, obeying all the dictates of personal hygiene and living a clean normal and temperate life." He speaks of leprosy in much the same terms. Of cholera, he writes: "Personal prophylaxis first of all requires scrupulous cleanliness of the person and surroundings." Of dysentery: "There are two essentials, scrupulous cleanliness and boiling of water and cooking of all food." Of hookworm: "After all, prevention of hookworm disease is a question of decency and cleanliness." And so the list grows from year to year.

Sometimes individuals living in educated communities minimize the importance of personal hygiene because they are themselves healthy and yet omit many of the rules of hygiene from their lives. They do not remain well because dirt is healthy but because other

individuals in their environment protect them through cleanliness from many of the transmissible diseases.

Sanitarians who used to say that thorough safe guarding of water supplies and food supplies was the most important factor in guarding the public health now say that education of the individual is the essential factor. Educate the individual to the idea of personal and public hygiene and the community diseases will be starved out. Overcrowding, dirt in tenements, poor food, are flagrant causes of diseases. Educate the individual to the ideals of personal cleanliness and our slums would vanish, for no person who is himself scrupulously clean will live or work in a filthy environment. The character of a person is known by the condition in which he keeps his house, his office or his workshop. Cleanliness is truly next to Godliness.

Very truly yours,

HUGH P. GREELEY, M.D.

THE EMPLOYMENT OF NURSES SUSPENDED FROM TRAINING SCHOOLS.

MASSACHUSETTS GENERAL HOSPITAL,

BOSTON, February 1, 1915.

Mr. Editor: May I call the attention of your readers to a bad condition that might be remedied with their assistance?

A few months ago a young woman called on me to ask to be reinstated in the training school, having left it ten years earlier. She wished to get her diploma so as to qualify for institution work. She said she left the school on account of illness at home and instead of returning to finish her course, had been doing private work successfully ever since. To strengthen her position she said she could give me references from our best known doctors who had employed her, even in their own homes; also that much of the time she had received the usual remuneration of the trained nurse. She said she had to ask the usual rates, otherwise her patients would have known she was not trained and would not have wanted her.

On looking up her record I found that she had been suspended at the end of six months in the hospital, and had never returned. I also found that her statement as to private work was true and that there were prominent doctors ready to endorse her.

Recently another woman who had been dismissed from the school twenty years ago after seven months in the school, called and said she had been private nursing successfully off and on ever since. Another undergraduate has been employed by the city in a graduate's position, no inquiry at the school having been made as to her credentials.

Many private nurses can tell of meeting such impostors on cases and in one instance that I know of the pupil had been dismissed for stealing. The graduate who met her on a case was persuaded not to betray her, and learned a lesson in ethics later, when some jewelry was missing in the home where they were both working on an equal footing.

Schools do not dismiss nurses without good reason, because it involves too much hardship for the hospital, if for no other consideration.

The nurses' uniform is not protected and consequently is no guarantee of graduation. Ought not doctors to know whether the nurses who work for them are really graduates or not? Ought patients to be deceived, and who is to protect them unless the doctor does? Hospitals where nurses should be under constant skilled supervision are the only safe places for partially trained nurses to practise.

If in six months a young woman of ordinary intelligence can learn enough to satisfy the physicians and if her services are worth \$25 per week to the people who employ her, there seems to be no reason why the three year graduate should compete in that field. Personally I heartily approve of the trained attend-

ant, although I should recommend a year's training and practise in elementary nursing methods, before permitting her to practise. I should like to see her registered as an R.A. (Registered Attendant) and do not doubt but that she would meet a long-felt need, but I do feel strongly that our work is too important to permit of a continued indifference to the present slipshod methods of employing nurses.

Correspondence schools and some hospitals are making capital out of the reputation made by and the opportunities open to real trained nurses. Who ultimately suffers most by the indiscriminate flood of pseudo-nurses turned out on the public? The public itself, of course—it is getting poor service and paying dearly for it.

The reputation of trained nurses is being so begrudged that only a few schools can attract the best women, and graduates of the schools that do maintain high standards are shrinking more and more from private duty. The question is being asked, "Why should nurses care for private work?" There are still some physicians and many people who want the most skilled nursing they can get for their patients and these are the people who must help us in improving our nursing schools and in obtaining needed legislation.

Faithfully yours,
SARA E. PARSONS, R.N.

AN EARLY INVESTIGATOR IN ANESTHESIA.

January 27, 1915.

Mr. Editor:

May I importune you to aid me through the columns of your valuable journal to secure some biographical data regarding Dr. E. R. Smilie, of 22 School Street, Boston, who in 1846, two weeks before Dr. Bigelow's epoch-making contribution on "Ether Anesthesia," in the BOSTON MEDICAL AND SURGICAL JOURNAL, published an article on "The Use of the Ethereal Tincture of Opium for the Relief of Pain During Surgical Operations."

Dr. Smilie was later intimately associated with the pioneers who made anesthesia a practical adjunct of surgery, and the undersigned is anxious to secure all possible information regarding his life, personality and work.

Any pertinent communications will be gratefully acknowledged and duly credited in the effort to illuminate the rôle which Dr. Smilie played in the Historical Evolution of Anesthesia.

Respectfully yours,

F. H. McMECHAN,

044 Wesley Ave., Editor: Quarterly Supplement of
Cincinnati, Ohio. *Anesthesia and Analgesia.*

[NOTE: The article by Dr. Smilie was a letter published in the issue of the JOURNAL for Oct. 28, 1846, (Vol. xxxv, p. 263), and that by Dr. Bigelow in the issue for Nov. 18, 1846, (Vol. xxxv, p. 309). The latter has reference to Morton's first public administration of ether at the Massachusetts General Hospital on Oct. 16, 1846. Dr. Smilie's letter is of such interest, from its close connection with Morton's discovery, that we take pleasure in reproducing it in full.]

UNSENSIBILITY PRODUCED BY THE INHALATION OF THE VAPOR OF THE ETHEREAL SOLUTION OF OPIUM.

To the Editors of the Boston Medical and Surgical Journal.

Sirs: As it is frequently found desirable to produce insensibility in persons requiring painful operations, I have made use of the ethereal solution of opium for that purpose, with excellent success, when reduced to vapor by gentle heat, varying the amount inhaled according to the length of time required for the operation; and from the entire absence of symptoms induced by pain, and those which usually result from

the excessive use of opium, I have thought the method of preparation and exhibition invaluable in removing the dread in severe, and the minor operations of surgery. As a medicinal agent in cases of pulmonary irritation, it is beyond doubt the best vehicle for the introduction of opium into the system, and will, when fairly tested by experiment, I have no doubt, prove eminently successful, in a great variety of complaints requiring sedative treatment, from the power that it possesses for the instantaneous development of its effects, through the diffusible agency of the solution. The course which I have usually pursued in preparing the combination for inhalation, is by the introduction of the quantity of the cold ethereal solution of opium required by the urgency of the symptoms, into a glass retort, and by causing a slow evaporation with moderate heat, the patient being permitted to breathe the gaseous vapor from an elastic tube affixed to the mouth of the retort. The judgment of the physician is to be exercised with regard to the quantity inspired, which must be regulated according to the character of the disease and the duration of the required operation.

Yours, etc.,

E. R. SMILIE.

22 School Street, Boston.

Miscellany.

PHILIPPINE CIVIL-SERVICE EXAMINATIONS.

MEDICAL INSPECTOR AND SURGEON (MALE), \$3,000.—

The United States Civil Service Commission announces an open competitive examination for medical inspector and surgeon, for men only. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in the Philippine Service, at a salary of \$3,000 a year, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The duties of the position will be to take charge of the health station at Manila or in the Provinces, as the Philippine Director of Health may require, and to attend to such surgical work as may be assigned in the Philippine General Hospital, probably the best institution of its kind in the Eastern Hemisphere, with 350 beds and an equipment comparing favorably with that of any hospital in the world. The new conditions, and the as yet undescribed diseases, that are constantly encountered furnish a wide field to one interested in his profession. As a further aid to his work the Bureau of Science, which is on the hospital grounds, has one of the largest and most favorably known research laboratories in existence.

SPECIALIST IN MENTAL AND NERVOUS DISEASES (MALE), \$3,500.—The United States Civil Service Commission announces an open competitive examination for specialist in mental and nervous diseases, for men only. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in the Philippine Service at a salary of \$3,500 a year, with subsistence, quarters, and laundry, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The duties of this position will be to organize and administer an insane asylum to be located on an estate of 600 acres, to exercise general supervision over the farm work, and to train a staff of nurses and attendants for this special work.

BACTERIOLOGIST AND PATHOLOGIST (MALE), \$2,000 to \$2,500.—The United States Civil Service Commission announces an open competitive examination for bacteriologist and pathologist for men only. From the register of eligibles resulting from this examination

certification will be made to fill vacancies in this position, Bureau of Science, Manila, P. I., at salaries ranging from \$2,000 to \$2,500 a year, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The duties of this position will be to carry on research work in the laboratories of the Bureau of Science, combined with the regular routine bacteriological and pathological work.

These examinations are open to all men who are citizens of the United States and who meet the requirements.

Persons who meet the requirements and desire this examination should at once apply for Forms B. I. A 2 and 2095, stating the title of the examination for which the forms are desired, to the United States Civil Service Commission, Washington, D. C.; the secretary of the United States Civil Service Board, post office, Boston, Mass.; Philadelphia, Pa.; Atlanta, Ga.; Cincinnati, Ohio; Chicago, Ill.; St. Paul, Minn.; Seattle, Wash.; San Francisco, Cal.; customhouse, New York, N.Y.; New Orleans, La.; Honolulu, Hawaii; or customhouse, St. Louis, Mo.; or to the chairman of the Porto Rican Civil Service Commission, San Juan, P. R. No application will be accepted unless properly executed, including the medical certificate, and filed with the Commission at Washington, with the material required, prior to the hour of closing business on March 2, 1915. The exact title of the examination as given at the head of this announcement should be stated in the application form.

BELGIAN PHYSICIANS' RELIEF FUND.

WEEKLY REPORT OF THE EXECUTIVE COMMITTEE.

The committee of American physicians for the aid of the Belgian profession is constantly receiving heart-rending reports regarding the distress of our Belgian colleagues and their families. Their plight is indeed a sad one. The urgency of the situation resembles that of a great conflagration. Promptness of action doubles and trebles its value. February will be a hard month in Belgium, with great suffering from severe weather added to their other trials.

Our English colleagues are fully awake to the situation. Though their number is small compared to that of America, they have contributed several thousand pounds to this cause. Arrangements have been perfected by which contributions are being promptly converted into supplies with every assurance that they will reach our destitute colleagues. Two hundred boxes of food have been purchased during the week ending January 30.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING JANUARY 30.

CONTRIBUTIONS.

Dr. C. H. and W. J. Mayo, Rochester, Minn.	\$100.00
Miss Margaret E. Reed, Chicago, Ill.	1.00
Dr. E. L. Neff, Pittsburg, Pa.	5.00
Dr. F. P. Sprague, Boston, Mass.	50.00
Dr. Caspar W. Miller, Wallingford, Pa.	50.00
Dr. John T. Bottomley, Boston, Mass.	25.00
Dr. Henry W. Frauenthal, New York, N. Y.	25.00
Dr. Edwin Sternberger, New York, N. Y.	10.00
Capt. W. A. Powell, M.C., U.S.A., Nogales, Ariz.	5.00
Dr. Frederick Fraley, Philadelphia, Pa.	10.00
Dr. George W. Ely, Pittsburg, Pa.	5.00
Dr. Samuel C. Plummer, Chicago, Ill.	5.00
Dr. R. W. Hodges, Baltic, Mich.	10.00
Dr. Ellen A. Stone, Providence, R. I.	10.00
Dr. Charles A. Elsberg, New York, N. Y.	25.00
Dr. F. M. Hicks, San Antonio, Tex.	10.00

Dr. Marion Marsh, Worcester, Mass.	2.00
Ohio Valley Acad. of Medicine, Bellevue, Pa.	25.00
Dr. M. P. Messinger, Oakfield, N. Y.	2.00

Total	\$375.00
Previously reported receipts	\$1791.00

Grand total	\$2166.00
Previously reported disbursement	\$1650.00
Disbursements, week ending Jan. 30	440.00
Total disbursements	\$2090.00

Balance	\$ 76.00
F. F. SIMPSON, M.D., Treasurer.	

ERRATUM.

Owing to accidental dropping out of a slug, which was not detected in reading the page proof, the title of an article by Dr. James M. Jackson, and Dr. W. D. Smith, was incompletely printed in the issue of the JOURNAL of January 28. The title should have read: "Blood Picture Simulating Lymphatic Leukemia in Acute Infection after Removal of the Spleen." We exceedingly regret the occurrence of this accident and express our sincere apologies to the authors.

SOCIETY NOTICE.

THE HARVEY SOCIETY.—The eighth lecture of the series will be given at the New York Academy of Medicine, 17 West 43d Street, on Saturday evening, February 13, at 8.30 P.M., by Prof. John A. Fordyce, of Columbia University. Subject: "Some Problems in the Pathology of Syphilis."

RECENT DEATHS.

JOHN CUNNINGHAM CLYDE, D.D., M.D., who died on January 28 at Easton, Pa., was born in White Deer Valley, Pa., on October 22, 1841. After graduating from Lafayette College he served throughout the Civil War as a provost marshal under General Grant in Kentucky. He subsequently studied both medicine and theology and was finally ordained to the Presbyterian ministry. He was a member of various historic and scientific societies and the author of several religious and medical works.

DR. PATRICK T. McDONOUGH, who died on February 4 at Woburn, Mass., was born on January 16, 1881. After engaging for a time in the practise of optometry he was appointed inspector of food and drugs for the Massachusetts State Board of Health. He was unmarried.

DR. SAMUEL WOOD LANGMAID, M.D., died at his home in Brookline, Mass., February 3, 1915, aged 77 years. He was born in Boston June 26, 1837, was educated in the Roxbury Latin School and in Harvard College, graduating in the class of 1859, and was a graduate of the Harvard Medical School in 1864. He was a member of the American Laryngological Society and had held many appointments in the hospital of Boston as laryngologist. He was much interested in music and was an accomplished tenor singer himself, while he cared for the throat troubles of many of the musical profession. He is survived by his widow and two daughters.

BOOKS AND PAMPHLETS RECEIVED.

Infant Feeding, Its Principles and Practice, by F. L. Wachenheim, M.D. Lea & Febiger, Philadelphia, Pa. 1915.
Obstetrical Nursing, by Charles Sumner Bacon, M.D. Lea & Febiger, Philadelphia, Pa. 1915.

The Boston Medical and Surgical Journal

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Original Articles.

THE TREATMENT OF DIABETES.*

BY FREDERICK M. ALLEN, M.D., NEW YORK.

[From the Hospital of the Rockefeller Institute for Medical Research, New York.]

It is customary to emphasize the importance of the subject of the treatment of diabetes by calling attention to the increase of diabetes among civilized peoples. Magnus-Levy¹ gives German hospital statistics showing that in thirty years the total number of patients increased 3.3 times, and the number of diabetic patients increased 19 times. Not merely the number of cases, but also the number of deaths has increased. The statistics for the registration area of the United States show, from 1901 to 1905, an annual average of 3772 deaths from diabetes, and a steady subsequent increase, so that in 1912 the deaths from diabetes were 9045. Authorities are practically unanimous in the opinion that improved diagnosis is not enough to account for this increase, that is, the increase is real and not merely apparent. Moreover, as Magnus-Levy points out, mortality figures fail to show the true incidence of diabetes. The majority of diabetics are elderly persons, and these often die of some cause other than the diabetes itself. Even among younger persons many deaths are recorded under tuberculosis and other infections, when the important predisposing cause was diabetes. Accordingly, the situation is that present prophylactic methods have not prevented an increased incidence of diabetes, and present thera-

peutic methods have not prevented an increased death-rate.

Rollo, an English army surgeon, in 1796 inaugurated modern diabetic therapy by limiting patients to animal food. Bouchardat and Cantani restricted the harmful excess of protein, and employed green vegetables. Naunyn has wielded a powerful influence in favor of the restriction of protein, and also occasional fast-days. His life has extended from the pioneer period to the present, and he deserves to be honored as the foremost clinician in the history of diabetes, whose methods and ideas have stood the test of time better than any others. Stadelmann, a pupil of Naunyn, in 1883 founded the theory of acid-poisoning as the cause of diabetic coma, and inaugurated the alkali treatment. Van Noorden in 1903 introduced the so-called "oat-cure." Various workers have elaborated these methods in various details, but essentially they constitute the present treatment of diabetes, and are the only measures that have shown any therapeutic value. No text-book or reliable treatise on diabetes claims that every case can be checked. On the contrary, all authorities describe a considerable class of cases that are past hope, and all agree in giving such patients carbohydrate for the sake of diminishing acidosis.

Special mention may be made here of treatments which have involved fasting. Naunyn's use of occasional single fast-days was to clear up a resistant glycosuria, to improve tolerance, and to ward off coma. Van Noorden makes use of the increased tolerance resulting from fast-days or vegetable days as a preparation for his oat-meal treatment. He also now follows Naunyn's plan of one or two fast-days to prevent coma, and he describes the immediate rapid fall of aci-

* Read at a meeting of the Suffolk District Medical Society in connection with the Boston Medical Library, December 2, 1914.

dosis thus produced. In a correct and forcible metaphor, he speaks of these days as "metabolic Sundays." He states that the benefit of these days is such that he can generally make the patient gain weight in the few days immediately following. This custom of forcing the patients to gain weight may prove to be a mistake which he and others make in the treatment of severe diabetes. Another form of using fast-days is the method introduced by Guelpa² of Paris. He believes that diabetes is an auto-intoxication. His treatment is a fast of three days or more, with a bottle of hot Hunyadi-Janos water each day, followed by first a milk, and then a vegetable diet, with occasional repetition of the fasting and purgation. It would be easy to aim ridicule at Guelpa, as those who read his original work will perceive. But it is better to emphasize the serious fact that Guelpa has used a rigorous fasting treatment for diabetes, and has demonstrated real benefit from it in some cases. On the other hand, his theories are grotesque, his excessive purging is an unnecessary inconvenience, and his milk and vegetable diet precludes success in any but mild cases. A search of his list of so-called cures shows that there is not a severe case among them. The rather startling character of Guelpa's treatment, and his exaggerated claims and active propaganda for it, have roused some interest among physicians and laymen in various parts of the world. Some quacks and nostrum-makers have taken their cue from him, and recommend fasting and purgation. Authorities on diabetes have ignored his treatment, because it is so far inferior to the ordinary rational methods. But, though the other features are erroneous, the benefit of the fasting deserves to be recognized.

There is considerable confusion regarding diabetes and glycosuria, and some physicians distinguish alimentary glycosuria, nervous glycosuria, gouty, hepatic, or other forms of glycosuria, as entities distinct from diabetes. Renal glycosuria is perhaps a rare genuine condition. There is no better rule than that made by Joslin³: "I consider any patient to have diabetes mellitus and treat him as such, who has sugar in the urine demonstrable by any of the common tests. This is a broad definition, but is safer for the patient than the use of the term glycosuria, which begets indifference." There are a few patients who, because of advanced age or other special reasons, need little or no treatment for their diabetes, and the main object is to keep them comfortable. My remarks throughout this paper are meant to apply only to that great majority of diabetics who are unquestionably in need of treatment.

It is impossible here to go into details of the theoretical and experimental side of diabetes, which I have reviewed elsewhere.⁴ To assist clearness, one statement may be made concerning the doctrines of the Vienna school, which has upheld especially two interrelated theories. One is that diabetes is nothing but an increased production of sugar, without loss of the power to

utilize sugar. The other is the polyglandular or pluriglandular doctrine, which represents diabetes as a loss of balance between antagonistic glands; in particular, the chromaffin system, as a stimulator of sugar production is supposed to be resisted by the pancreas, as an inhibitor of sugar production. The one statement to make concerning both these doctrines is that they have never been supported by facts; and it would not be necessary to mention them here except for the over-zealous manner in which they have been promulgated among the medical profession. Certainly the great mass of evidence and the great majority of investigators favor the view that in diabetes there is a loss of power to utilize sugar, not a mere acceleration of sugar formation. Also, the internal function of the pancreas is somehow to make possible the utilization of sugar by the tissues. There is no valid proof in the entire literature to show that the adrenals oppose this function of the pancreas, or that the pancreas inhibits sugar formation or opposes the adrenals in any way. Most of those here are familiar with the work of Cannon, who has shown how states of strong emotion are attended by splanchnic stimulation, adrenalin discharge, and hyperglycemia, and has suggested the explanation that this mechanism provides increased sugar for the muscular activity naturally associated with such emotions. I cannot forbear mentioning how unthinkable such a mechanism would be, if the adrenal stimulation and adrenalin discharge opposed the utilization of the sugar by the tissues. It will conduce to clearness if people will dismiss from their minds those diagrams showing imaginary lines running between pancreas, adrenals, liver, thyroid, etc.

The best established and most generally accepted theory is that diabetes results from deficiency of the internal secretion of the pancreas. In a relatively small number of cases there is gross destruction of pancreatic tissue by infection or otherwise, and here early surgical intervention, in the form of drainage of the gall-bladder or other suitable measures, is presumably the most important treatment. In the great majority of cases the gross appearance of the pancreas is normal. Changes in the islands of Langerhans occur in animals with experimental diabetes, and changes in the islands of human patients are being found more frequently as they are sought more carefully. Even after the longest and severest clinical diabetes, changes in the islands may be difficult to discover, and complete destruction of all the islands in the human pancreas must be a great rarity, if it ever occurs. In animals the islet changes are secondary to the diabetes. In human cases it is still unknown to what extent the changes are primary, producing the diabetes, or to what extent they may be secondary, produced by the diabetes. It seems that a considerable functional factor is generally present; that we are never dealing entirely with destruction of tissue which cannot be replaced, but always with a certain element of disturbed

function, which can be broken down by overstrain or strengthened by rest. On the other hand, a full return to normal function is practically never obtainable.

Macleod,⁵ in the opening of his book, gives a simple objective description of diabetes. He states how it appears at first as a weakened function of carbohydrate metabolism, next there is a weakened function of protein metabolism, and then in the severe cases an imperfect metabolism of fat. If we follow this plain, simple idea, it guides us to a rational therapy. Diabetes is commonly looked upon as a progressive, fatal disease. Of course in one sense it is a disease. But in another sense, it may be beneficial to implant the idea in both physicians and patients that diabetes is *not a disease*. There is no evidence that it is an infection, or an auto-intoxication, or anything else of that order. So far as I am aware, an inherent downward tendency has never yet been demonstrated in typical cases. For practical purposes we may well keep to the simple idea mentioned above, that diabetes is merely the weakness of a bodily function, namely the function of assimilating certain foods. It may be compared with indigestion. A weak stomach* may never become a strong stomach, but there is no cause for death unless the patient abuses the weak organ. The possibility and perhaps the probability exists that a weak pancreas is something analogous. Every person has his weak point, and ultimately breaks down at some one point, rather than everywhere simultaneously. If diabetes is a weakness of the pancreatic function, we can understand why the breakdown is most frequent in elderly persons, but generally most serious in young persons. This idea began with Naunyn. If a person overtaxes a weak stomach, the resulting distress punishes the error and forces him to desist. If he overtaxes a weak pancreas, nothing but intelligence can show him what is wrong. If there were no prompt reflex mechanism to prevent and punish overtaxing the digestive function, doubtless the death-rate from indigestion would be fully as high as the death-rate from diabetes now is, and indigestion might appear as a progressive fatal disease, for which all sorts of explanations and all sorts of remedies would be offered. Many dyspeptic sits at table and longs for pleasant-tasting food, but dares not eat it because of the immediate penalty. Many a diabetic sits at table and longs for certain food, and perhaps eats it, even though he knows better. This is merely an illustration that the lower nerve centers are often more effective in controlling conduct than the higher centers. But if the conception is correct, of diabetes as the simple weakness of a bodily function without inherent downward tendency, then if the patient is obedient he may be kept from going down-hill simply by preventing him from overtaxing his weakened function. The weak pancreas may never become a

strong pancreas. The patient may never be entirely normal again. But if our idea is fully correct, this precaution may save life.

The form of treatment embodying this idea was first worked out on animals, and has been described briefly elsewhere.⁶ When about nine-tenths of a dog's pancreas is removed, the resulting condition may appear as a progressive fatal disease. But obviously we have produced not a disease, but merely the weakness of a certain function. If we try to keep the dog fat, and satisfy his large appetite, he goes steadily down-hill for several months, and dies in extreme cachexia. But we can stop glycosuria by fasting, and can then place the animal on a low diet which will support life without producing glycosuria. Such an animal is thin, but strong and lively, with no cachexia and no sign of downward tendency. The treatment for patients is similar. The first step is to fast till glycosuria ceases, and then for twenty-four or forty-eight hours longer. At the same time, the ketonuria falls steeply. It quickly approximates what a normal individual would show under similar conditions, and the aim is to keep it constantly down to this level. Plain fasting suffices for the purpose; but since alcohol is a food which does not produce glycosuria and is said to diminish ketonuria,⁷ it is generally given during fasting, especially if there is danger of coma. Its use or omission in later treatment depends upon individual conditions. Alkalies may be useful for the first few days if coma seems imminent, but are then no longer needed. Continuing the sodium bicarbonate may cause the ferric chloride reaction to remain positive longer than it otherwise would, with no benefit to the patient as far as I have seen.

When the fasting patient has been free from glycosuria for twenty-four to forty-eight hours, the next step is to begin feeding very slowly and cautiously. There need not be a fixed program. It is desirable to individualize the diet to suit the needs of different patients, and various physicians may have personal preferences of their own. The one requirement is that the patient must remain free from both glycosuria and acidosis. Any trace of sugar is the signal for a fast-day, with or without alcohol. The original fast, to clear up the urine in the first place, may be anything from two to ten days, but after that no fast need be longer than one day. The things to be considered in the diet are carbohydrate, protein, fat, and bulk. Frequently the first thing given after the fast is carbohydrate. No distinction is necessary between different forms of starch, but there are advantages in using vegetables, following Joslin's convenient classification on the basis of carbohydrate content.⁸ The first day after fasting, the only food may be 200 grams of vegetables of the five and six per cent. classes. This is increased day by day until a trace of glycosuria appears, which is checked by a fast-day. The purpose of such a program is to learn the carbohydrate tolerance and to clear up the last traces of acidosis. After this carbohydrate

* This term is of course meant only in the usual colloquial sense, to signify the digestive function.

period, or sometimes in place of it, protein is given. On the first day perhaps one or two eggs are given, and nothing else. More protein, generally as eggs and meat, is added day by day, until the patient either shows glycosuria or reaches a safe protein ration. The purpose here is to learn the protein tolerance, and to cover protein loss as quickly as possible. Fat is somewhat less urgently needed, except in very weak and emaciated patients, and it can be added gradually, as conditions seem to indicate. An element of bulk in the diet is necessary to give the comfortable feeling of fullness, and to prevent constipation. This is the great advantage of green vegetables. When they are fed raw, or cooked in steam, or boiled and evaporated so that no water is thrown away, they contain a definite quantity of carbohydrate, besides valuable salts; and this is the only form of carbohydrate that patients thus treated ordinarily receive. Some cases are so severe that even green vegetables cannot be tolerated. A little girl now in the hospital showed glycosuria when she was given nothing but 100 grams of celery and lettuce distributed through the day. Under these conditions the vegetables may be boiled through three waters, throwing away all the water. Nearly all starch is thus removed, and the most severe cases generally take these thrice-cooked vegetables gladly and without glycosuria.

One result of the initial program here described is the loss of weight. This is the thing which physicians have been accustomed to dread most but which, according to present indications, is beneficial in itself. In subsequent treatment, the patient is welcome to gain weight up to a certain point, provided he can do so without glycosuria or acidosis. The attempt to put on weight, according to the time-honored traditions of diabetic treatment, is one of the surest ways of bringing back all the symptoms and sending the patient down-hill. It is probably one of the chief causes of past failures in treating severe diabetes. In the severe cases it is found necessary to restrict all classes of food, and to test the tolerance of each patient for each particular class. Carbohydrate is given if possible, but is kept safely below the limit of tolerance. Protein must be kept fairly low, sometimes very low. With a dangerously low protein tolerance the working rule has been to exclude all carbohydrate, then feed as much protein as is possible without glycosuria. Experience thus far seems to indicate that every patient can tolerate his necessary minimum, and that glycosuria appears only when this indispensable minimum is exceeded; but a longer series of analyses will be necessary before asserting this as a fact. Fat has heretofore been considered as both safe and necessary in the diabetic diet. I realize the risk of disputing this doctrine, but must state the observation that patients may show a fat tolerance as truly as a carbohydrate or a protein tolerance. I have never seen glycosuria from fat alone; but there are patients whose urine is constantly neg-

ative on a given diet, who will show both glycosuria and ketonuria if butter or olive oil is added to that diet. The very severe diabetic may be both thin and weak, because he cannot metabolize enough food to be strong or well-nourished. But as long as his weakened function is not overtaxed, he seems able to retain such weight and strength as he has, at least for a considerable period. Any attempt to build him up with any kind or quantity of food beyond what he is able to metabolize perfectly, apparently hastens a fatal result.

The number of diabetics admitted to the Rockefeller Hospital has been twenty-seven. The majority were admitted only during the past month, therefore are still in the Hospital. The longest treatment and observation of any one patient has been nine months. The number of applications has considerably exceeded the accommodations, therefore selection has been possible. No very severe case has yet been rejected, and the policy has been to choose the worst cases of diabetes that could be found. Lately a few earlier or milder cases have been admitted, in order to learn what can be done with such patients. The youngest patient is aged ten. The oldest is a woman of sixty-nine, with incipient gangrene. Every patient treated has been made free from both glycosuria and acidosis. The number of deaths has been three. Of these two were untreated cases; viz., one man who entered the hospital in coma and died within three hours, receiving no treatment except an intravenous bicarbonate injection; and one woman who entered with acute heart failure and hemoptysis, and died on the fifth day, apparently from her cardiac lesion. The one treated patient who died was a twelve year old boy, who had had diabetes for seven years, the long duration being perhaps partly explained by the excellent care he had received. The emaciation was extreme; there had been albuminuria with casts for several months; he was almost totally blind with diabetic retinitis; he had been in partial coma on several occasions, and coma had been feared for several days before he entered the hospital. This boy became free from glycosuria and acidosis, and showed very satisfactory improvement for two and one-half months. He was taking a diet of sufficient quantity, and had acquired a tolerance of twenty grams of carbohydrate. He seemed to cooperate very cheerfully in the treatment as long as the fear of death was upon him, but as soon as he imagined himself out of danger, he showed surprising ingenuity in stealing food. Several such adventures caused him to lose ground seriously, and he died in a rather sudden and unexplained fashion, with urine still sugar-free, four months after entering the hospital. The essential cause of death was his extreme weakness. Accordingly, up to the present, the record is that no patient has died who has followed treatment. Deaths are to be expected, however, if we continue to accept the most extreme cases; and there

is no desire to pretend that this treatment can save all patients.

The graphic charts shown here represent the records of four patients. These charts and analyses are made by or under the supervision of Miss Mary B. Wishart, as chemist.

The first chart is that of a man aged 34, with moderately severe diabetes of one year's standing. He originally weighed 175 or 180 pounds, without obesity, and he had lost fifty pounds. There was considerable glycosuria on ordinary strict diet; in two days' test on admission the output was 32 to 61 grams. There was a positive ferric chloride reaction, but no clinical symptoms of acidosis; and as we were busy with more severe cases, no quantitative determinations were done except for sugar. Four days of fasting were required before the urine was sugar-free. That is one indication that the diabetes was not very mild. Ketonuria ceased as usual. The diet was gradually increased, and the improvement was satisfactory. Then an experiment was started with quantitative determinations, and the chart shows how both glycosuria and ketonuria returned when fat was added to the diet. As this was a fairly mild case, an enormous quantity of fat was necessary to produce this result—more fat than the average patient could eat. Everything then cleared up promptly under treatment. He gained weight and was dismissed to resume his ordinary work, on adequate diet, but with orders to keep himself at least fifteen pounds below his previous weight.

The second case is a little more severe. The patient was an Italian tenement-house girl, seventeen years old, with diabetes of eighteen months' standing. One year ago she spent seven weeks in Mt. Sinai Hospital. The diabetes was not stopped, and she was dismissed, taking sodium bicarbonate and a limited quantity of bread. Before the diabetes she was slightly obese, weighing 120 pounds. Her weight when we received her was 92 pounds. On ordinary strict diet her urine showed 78 grams sugar, 11.7 grams acetone bodies as B. oxybutyric acid, and 3.1 grams ammonia, on 20 grams of sodium bicarbonate daily. She cleared up in the usual way and progressed satisfactorily. Her symptoms were reproduced by adding chiefly fat to the diet, and were cleared up again by the usual treatment. She was dismissed to go to work, on adequate diet, with urine normal, feeling perfectly well. She was not allowed to gain weight, and was ordered not to gain weight after leaving.

The third patient is a man aged twenty-nine, with diabetes of eighteen months' standing and unusual severity. He was thin and slight at his original weight of 145 to 150 pounds, and he entered the hospital weighing 110 pounds. He had been in the best of hands, but was never sugar-free from the outset. He was sent to us from the Presbyterian Hospital, where he had been for ten days in a dangerous condition. They had found the D:N ratio of the totally depancreatized dog, viz, about 2.8 to 1. We confirmed this in a four days' test on carbohydrate-free diet. During this time he was shooting downward with remarkable rapidity. While eating to his utmost capacity, he lost about a kilogram of weight per day, with a negative nitrogen balance of from 12 to 16 grams per day. Sugar excretion was

58 to 65 grams, acetone bodies 20 to 39 grams, ammonia 2.88 to 4.25 grams. Treatment had to be begun because he was going into coma. The chart shows the subsequent progress, during his four months in the hospital. So far, this record is the most unsatisfactory one we have, and I show it for that reason. There is no ketonuria, but the occasional slight glycosuria is bad, and is only partly explained by intentional dietary tests. There is no immediate danger, and the patient feels much better and more comfortable in every way than before treatment. He can be up and dressed all day, and can take a little exercise or go to the theatre. But he is thin and weak, unfit for work, and still in need of hospital care. His future is doubtful.

The fourth patient is the most severe we have had. He was a strong, healthy Irish boy, aged seventeen years, apparently absolutely normal until the sudden onset of diabetes ten months ago. He had chiefly dispensary treatment, and was twenty-five days in Bellevue Hospital last June, but the diabetes was never stopped. His normal weight was 133 pounds. He came to us weighing 91 pounds. He had just had a severe gastro-intestinal upset with weakness such that he was expected to die, and came to the hospital as soon as he was able to leave bed. His blood-pressure was 85 systolic, 75 diastolic. He was sent to Bellevue Hospital for calorimeter tests by Dr. DuBois in connection with the treatment, and has remained there up to the present time. I am indebted to Dr. DuBois for all the records and analyses except those of the acetone bodies. The preliminary tests were cut short because coma seemed imminent. The most interesting data are that on Nov. 11 he received no food except 50 c.c. cream early in the morning, and subtracting the carbohydrate of the cream, the D/N quotient on this day was 3.69.⁹ The blood-sugar on this day was 0.3%. The respiratory quotient was 0.697, indicating the combustion of little or no carbohydrate. The chart shows the subsequent history to date. It is noteworthy that the blood-sugar has declined, but has never yet reached normal. This is the only case, among several tested, in which the blood-sugar has not fallen promptly to normal. The diet now consists of meat, eggs, butter, olive oil, whiskey, and thrice-cooked vegetables, representing a maximum of 9.77 grams nitrogen and 1991 calories daily. A trace of glycosuria appeared on this maximum diet, which has therefore been slightly reduced. The patient is subjectively improved. The respiratory quotient indicates that the protein sugar is now burned. The marked gain in weight is essentially water-storage, which perhaps represents partly a normal recovery of water by the previously dried tissues, and perhaps partly an invisible edema.

These cases afford a general idea of the methods and results of this treatment. There seems evidence that it clears up certain cases which heretofore have not been cleared up, and that the cases which could be cleared up heretofore are cleared up more quickly by this method. Of course it is not a "cure" of diabetes; and essentially the new feature in it is that, upon the information gained from animal experiments, it attempts to do the same things that the rational treatment has attempted previously, but to do them more quickly and accurately and thorough-

ly. The immediate results are what we can state. The permanent results are yet to be demonstrated, and they are the most important. As friends here in Boston have told me, what they wish will be to know, one year, two years, and at longer periods hereafter, how many of these patients are dead, how many are free from glycosuria and other symptoms, how many are fit for work or play, and so forth. These are in fact just and decisive questions. The answer to them will be governed by two factors, one of which may be called the scientific factor, and the other the human factor. It is worth while to discuss these two factors, to give some idea of the hopes and possibilities.

The scientific factor has to do with the theoretical value of this treatment under ideal conditions. What are its powers and its limitations, provided it is perfectly carried out? It seems possible that it may offer the hope of abolishing, in diabetes, all those things which have traditionally been considered as practically synonymous with diabetes. It gives the vision of a diabetes in which there is no glycosuria, no acidosis, no use for alkalies or other drugs, no complications, no gangrene, no downward progress, no coma, no death. That is the ideal which I venture to put into words, without knowing whether the future will justify it or not. The vital question must be decided: Is there or is there not an inherent downward tendency in diabetes? The answers of the past are not conclusive, because there has been too much overfeeding with carbohydrate-free diet. If the pancreatic function is spared by keeping the total diet low enough and the body weight low enough, will there be any spontaneous downward tendency? All that can now be said is that in the longest observation, namely nine months in a severe case, the condition is still good. But the most severe cases cannot give the answer. To keep these patients alive at all probably involves a strain upon the pancreatic function, comparable to the strain of excessive carbohydrate-free diet in the milder cases. This girl who has been in the hospital for nine months has improved subjectively and seldom needs fast-days, and is expected to go home before long; but when it was attempted recently to add half a small grapefruit to her carbohydrate-free diet, the result was an immediate glycosuria which required a fast-day to stop it. In these other cases, the addition of a few grams of protein or fat makes trouble. That is how close the margin is, and it is too dangerously close. It may be considered probable that these very severe cases will go slowly downhill, and that treatment can merely prolong their lives and keep them more comfortable, without saving them. From the experience with milder cases, we might think that when these very severe patients are kept free from glycosuria for several months continuously, their tolerance ought to improve. So far, this hope has been disappointed. Gain in tolerance marks the milder cases. In the cases of utmost

severity, it is as if the trouble were organic, or as if the breakdown, if functional, were beyond repair. An interesting theoretical question is raised as to the reason why apparently all patients, even those with total diabetes, can be free from glycosuria and acidosis if brought to a starvation level, but cannot tolerate any attempt to raise them much above this level. From a practical standpoint, even under ideal conditions, I cannot see much hope for the third and fourth patients described here. The second would make an interesting study if she could be kept under ideal conditions. The first patient is much more hopeful. The important practical point is that patients should never be allowed to reach any such condition. All four of these patients came under medical care near the outset of their trouble, but the physicians did not stop the glycosuria or the ketonuria in a single one of them. A boy of sixteen years has recently been admitted to the Hospital with heavy glycosuria of only a month's duration. His urine was made normal in two days, and he will be dismissed with a favorable prognosis conditional on good behavior. The cases of utmost severity are really useful chiefly as tests to demonstrate the benefits of methods which should be applied to all cases before they become severe. If there is ever to be the ideal epoch of treatment which I mentioned above, it can come only through the application of efficient, intelligent methods by the great mass of general practitioners, who are the ones that see the great mass of diabetics in the early stages. When such methods are used from the outset, we shall have opportunity to learn whether downward progress in diabetes is inevitable.

There is now to be considered the human factor. This involves recognition of the important fact that conditions are seldom ideal, human nature is imperfect, and the treatment is long and onerous for both physician and patient. Nevertheless, one of the principal hopes that I have for this treatment is that it will prove useful in assisting the human factor. This proposition may be discussed in relation to the physician and to the patient. However specialists may feel, there is no doubt that a majority of average practitioners feel bewildered and helpless concerning diabetes. The widespread use of drugs, proprietary nostrums, and various irrational treatments probably indicates not so much confidence in these things as ignorance of other means to use. Granting that the principle is correct, there should be considerable value in impressing physicians at large with the idea that diabetes is merely the weakness of a bodily function, not a progressive fatal disease. Many physicians fear to withdraw carbohydrate, if the withdrawal causes any marked ketonuria. Accordingly, they give carbohydrate and thus send the patient downhill with continuous glycosuria.¹¹ The treatment above described will stop glycosuria very promptly, and instead of producing ketonuria will abolish it if it already exists. It will

be beneficial if the general medical profession comes to realize that the interests of the patient require the stopping of both glycosuria and ketonuria, and that it is possible to stop these things within a very few days.

Taking up the patient's side of the matter, it can be said that no one has yet refused to take the treatment. The treatment is rigorous, especially in severe cases, but every patient has reported increased comfort, and has preferred to endure the low diet rather than to return to what he suffered before beginning treatment. Gastro-intestinal troubles are absent. The patients have shown none of the carbohydrate hunger which is supposed to belong to diabetes. When asked what they would like to have added to the diet, they have said bacon more often than bread. In view of the opportunity to choose patients, the question arises as to what sort should be selected. The choice might be limited to intelligent, well-to-do, careful persons, and thus an attempt made to show what can be done under ideal conditions. This might be called an unfair test, since most physicians and hospitals cannot thus select their patients. Therefore up to the present, patients have been selected solely on the basis of severity, without regard to character, intelligence, or surroundings. Also, it could be arranged to keep all these patients by themselves. But since some hospitals cannot do this, most of our patients are now kept in wards along with cardiac and other cases, where they might steal food if they tried hard enough, and where they can see trays of bread and desserts going to other patients. These are conditions which they must face when they leave the hospital, and they might as well be accustomed to them. There has been practically no trouble on this account. By taking patients who are poor, ignorant, careless, and lacking in self-control, it is made certain that our statistics will suffer. Some of these patients will promptly relapse, and others will drop out of sight and never be heard from again. These conditions must all be faced, in order to learn what can be done with the ordinary run of patients. The ultimate results will fall easily into two groups. When the patients follow instructions carefully, we shall learn what happens under good conditions. If they go downhill under these conditions, the scientific factor will be at fault; this will be the test of it. But when the patients fail to obey instructions and proceed to eat bread and potatoes, this will have nothing to do with the theory of the subject, and will represent merely a failure of the human factor.

It will be of interest to know whether our method can help this factor. Most patients of all classes desire to live, and desire to be free from the symptoms that trouble them. Our severe cases have nearly all been told elsewhere that they must die, and even the milder ones generally have a wholesome fear of the word diabetes. It seems to make a very good beginning when they are told that their glycosuria will cease

within a few days; that they have not a mysterious fatal disease, but merely the weakness of a bodily function, like a weak stomach, and that it is entirely their own responsibility to live or die. Even for the patients who could be cleared up within a few weeks or months by the older methods, it seems an advantage to clear up the urine within a few days, and devote the remaining time to getting the patient accustomed to his diet and teaching him to take care of himself. On leaving the hospital, the patient is given orders as follows: to save and test his urine every day by Benedict's method, which even the ignorant can learn; if sugar appears, to check it instantly by a fast-day and then reduce his diet somewhat; to take a fast-day in bed at stated intervals, generally once in two to four weeks, even if sugar does not appear; to live on a diet of certain articles of food in certain approximate quantities; and instead of weighing the diet, to weigh himself at least once a week, and never let his weight rise above a stated figure. This figure is always below his original maximum weight, and is made lower in proportion to the severity of the diabetes.

As mentioned before, only the immediate results are stated as facts, and time must decide concerning the permanent value of the method.

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SOME PERILS CONFRONTING STATE CARE OF THE INSANE.*

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THE purpose of this paper is to call attention to old evils appearing in more virulent form at the present time. The centralized management of all state institutions, quite popular throughout the country, makes a brief review of the history of the public care of the insane both pertinent and instructive. The history may be roughly divided into three periods: first that of

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neglect, second of mixed care, and third of state care.

The period of neglect began in early Colonial times and extended through the first days of the republic to the beginning of the nineteenth century. The failure to properly provide for the insane during these early years may be attributed to infrequency of the disease, and profound misconception of its real nature rather than any lack of the true spirit of charity. In the very earliest Colonial days one may possibly trace a certain portion of this indifference to the austere religious conception of life characteristic of the Puritan. These serious religionists may have regarded the misfortunes of the insane as a judgment of God upon some moral perversity or short-coming. It is conceivable that their mental attitude may have curbed any feelings of sympathy which might naturally be awakened by the sufferings of the mentally afflicted.

Probably infrequency of the disease during the Colonial period was the most prominent underlying factor in this early neglect of the insane. During this period there were few insane, not merely because there was a sparse population, but because the early colonists were strong virile men and women. There were few weaklings. These first settlers were both mentally and physically the best equipped of their race. They were the ambitious adventurous pioneers, anxious to secure for themselves larger liberty in a new land. The very qualities of mind and body that led them to renounce the easier life in their native land and endure the privations and hardships of a new and unsettled wilderness were inconsistent with brain weakness. Insanity was rare because these earlier inhabitants for the most part possessed sound minds in sound bodies. Apparently mental defect was so infrequent that communities regarded as freaks such sporadic cases as did occur, rather than mentally diseased persons whose maladies might reappear in others and require special care. This disregard of insanity was a logical result of the prevailing misconception of its real nature. Consequently defective and insane persons of the early Colonial period were, if poor, allowed to roam at large with little or no care. Among families of means such cases were segregated and cared for at home as well as circumstances would admit.

Eventually the increasing number of mentally diseased persons made some sort of recognition imperative both for their own safety and that of the community. It was evident that public care in some form must be adopted. The problem, being a local one, its solution was sought within the conventional boundaries of the township. The town officials were called upon to care for their own insane as best they could, in the poorhouse or other extemporized way.

In some states, especially the less populous, the town system of care was felt to be inadequate. The numerically small town and the

town with limited finances found the expense burdensome; they could not provide suitable and in some instances even decent care. As facilities for intercommunication multiplied, the mutual interests and common relationship between towns in the same county became more manifest, with the resulting conviction that the county could furnish better care for all the insane within its boundaries than the towns acting independently. In these states county farms with large acreage and many buildings were established, and the old town poorhouses were closed. The result was greatly improved care of the insane. The larger unit not only provided better care, but under this system there was a diminished feeling of disgrace in the mind of the recipient of this form of public charity. The closer the donor to the beneficiary, the more intimate the personal relationship between the two, the more keenly does the recipient feel his misfortune.

As has been said, the period of mixed care, roughly speaking, began in the early days of the nineteenth century. With few exceptions, at that time the majority of the insane were maintained at the expense of the towns. Town care was generally accepted as the only method of public provision for the dependent insane. Early in the nineteenth century an awakening to the needs of the insane appeared. Partial state care was advocated, a method which received staunch support in Miss Dorothea Dix. The movement spread throughout the country, and state institutions appeared throughout the land. While these were nominally state institutions, no attempt was made to provide within their walls for all the insane in any state, nor was entire state support of all the patients admitted contemplated at that time. During this period of mixed care the dependent insane were supported and cared for by the town, the county, and the state in the three different classes of institutions enumerated.

During all these years experience was demonstrating that in the field of public charities and corrections the state is better fitted for the administration of the complex problems involved in the care of the insane. It is now generally conceded that of the three administrative units—town or city, county, and state—the latter is the one best equipped for the successful care of the insane, involving as it does intricate questions of treatment, prevention, after-care and scientific research. The slow evolution of state care from the remote days of neglect is evidence of the soundness of the consummation attained. The principle of state care achieved only after years of experience and mature conviction is unquestionably logical and correct.

When the asylums, as they were formerly called, were first established, their management was modeled after that of the general hospital, viz., boards of unsalaried trustees, whose only compensation was their travelling expenses.

The governors of the several states selected for these positions, business, professional, and scientific men, whose interest in the work would be assured irrespective of any remuneration. This plan has always proved most satisfactory in the government of either public or private charitable institutions. Partisan political affiliation played no part in the selection of these trustees. The result was a disinterested service freely given by men of the highest ability. The very fact that there was "nothing in it," in the sordid political sense, kept away "grafters" and secured permanency of service. At first only men were appointed on these boards, but later and long before the present feminist movement began the need of women's assistance was realized and two or more women were almost invariably represented in the personnel of the boards. The advantages accruing to the state from this form of institutional polity are economy to the state, continuity of service, elimination of politics from the conduct of state charities, and a certain definite zeal and interest in the work that comes from the intimate personal association existing between the superintendent, his medical staff, and the managers of the institution. The more impersonal and the farther removed from the daily life of the hospital is the board of managers, the less the interest and the more mechanical becomes the service. The more intimate the personal relationship between a local board of interested trustees and the superintendent and his patients, the more positive will be the impression upon the hospital. In fact, the successful hospital is the reflection of the character and devotion of its board of managers and their superintendent. Hospitals, like persons, have an individuality, which, after all, is merely the expression of the devotion, enthusiasm, and experience of those in charge.

The government of the state's charitable institutions by unsalaried boards of trustees has the distinct advantage of stimulating a general public interest in such charities. Undoubtedly this idea primarily suggested the management of the general hospitals by unpaid trustees. Society does and should take an interest in the benevolences of the state. Such interest should be fostered and utilized in every possible way. If professional and business men, or those with leisure and large experience in charitable work, are willing to devote their time and energy without remuneration to the administration of our public charities, by all means should such service be accepted and encouraged by the state as a civic obligation of its citizens. Not only is economy secured to the state by such gratuitous service, but a zeal and spirit of devotion is attained that is invaluable. One of the chief objections to the old town and county care of the insane under partisan political appointees was the indifferent service rendered by such management. Scientific study, proper classification of patients, and intelligent care were too often

sacrificed to a spirit of petty political economies, which lost sight of the real purpose of the charity.

Within recent years an entirely different system of institutional polity has arisen. Under this method all the state's charitable and penal institutions are placed under the management of central boards of control, with offices at the state house. The local boards of trustees, who met at the institution over which they were appointed, are abolished. The board of control usually consists of three members, who have salaries and are appointed with some reference to their party political affiliations. Women are not represented on these boards and consequently are not represented in the management of any of the state institutions. The new system, beginning in the West, has recently moved rapidly eastward, and for obvious reasons has become quite popular with the politicians. A fancied economic saving to the state has, however, prejudiced many well-meaning persons in its favor. Misled by specious reasoning, based on a somewhat illusory theory that administration of the state's charities by a board of control is founded on sound business principles and that a great saving to the state is to be thereby effected, these very fair-minded persons hastily subscribe to the new doctrine without sufficient reflection as to whether the new polity is really economical and most desirable in the long run for the administration of the state's charities. It may be well to consider carefully the merits and demerits of a system which threatens to abolish an institutional polity that has had the sanction of time and experience and which still is the only recognized form of institutional management in all private charities. With the general acceptance of this principle of state care of all dependents, attention has been directed as never before to the magnitude of the expense involved. This expense was not as noticeable when divided among counties and towns, but when presented in the aggregate in a single lump sum looms up as one of the largest financial burdens that the state has to carry. Central supervision over this expenditure is both logical and necessary. The principle of centralization in business management is sound and there is no reason why a state in the direction of its charities should not be guided to a certain extent by the same economic considerations that prevail in the business world. At the same time there is a difference in the final purposes of a large business organization like the Standard Oil or the U. S. Steel Corporation, whose sole ambition is financial return to stockholders, and the charities of a state, whose chief mission is the alleviation of human suffering. In the attempt to centralize the management of all state charitable institutions there is a real danger that the original mission of these charities may be sacrificed to an arbitrary and mechanical business theory. Economic administration of

the state's charities is only one side of the equation. As at present constituted, boards of control attempt a double service for the state,—fiscal supervision and administrative control of the institutions. These two functions, although closely related, need not necessarily be imposed upon the same board. While the steadily increasing cost of maintenance renders fiscal supervision by the state necessary, it does not follow that administration of the institutions can be more economically or more satisfactorily conducted by central boards of control than by carefully selected unpaid boards of trustees.

In the management of the state's charitable institutions we find then that fiscal supervision and administrative control are the two desiderata. The problem is to so correlate these two phases of institutional polity that the best interests of the wards of the state may be conserved with the least possible expense to the state. In the new system of centralization the fulfilment of this double obligation is placed upon the board of control. The wisdom of this course is questionable. While centralization may be desirable in the control of expenditures and possibly in the purchase of supplies, its application to the administrative detail of the institutions may be unfortunate.

With certain slight differences in the various Western states, boards of control as originally devised were composed of three members, with salaries of \$3500 each, or thereabout. These boards appointed the superintendents and purchasing agents for the institutions, and assumed the administrative and advisory functions that formerly belonged to the trustees. These boards had exclusive control over the finances and management of the penal and charitable institutions of the states. In many states local boards of visitors were appointed without pay except for traveling expenses, a sort of concession for the removal of the trustees. Women were represented on the board of visitors. It is significant, however, that these visitors are not responsible for the management of the institution, practically have no authority and naturally lack initiative. These visitors are practically figure heads, replacing the former trustees. The distinguishing characteristics of the new system are the central government of the institutions in both their physical and financial aspects, the divorce of the business and medical management of the hospital, and the obliteration of the individuality of the several institutions.

With presumably economical intention many modifications of this original scheme have appeared without, however, increasing the efficiency. In New Hampshire a board of control has been appointed with the purchasing agent as a member. This purchasing agent receives a substantial salary and devotes his entire time to the work, while the other members receive a *per diem* remuneration and devote such time as in their judgment seems advisable. Modi-

fications of the original plan in the interest of economy are questionable. It would seem advisable that if management by a board of control is adopted the members of the board should devote their entire time to the work, even though the expense is larger.

In still another state the following rather complicated plan has been proposed which would certainly have the merit of providing many salaried officials with positions involving large expense. This plan provides a central board consisting of five members with salaries of \$1000 each, whose functions are general and advisory. The central board appoints a director. This director must command a large salary, for he is endowed with vast powers, including the appointment of four assistant executive secretaries with large salaries, a business agent, the superintendents of the several institutions, as well as supervision and control over everything pertaining to the administrative and financial affairs of the hospitals, including all new construction. Under the director the four executive secretaries come into immediate contact with the details of the institutions, in a way replacing the former unpaid trustees. The business agent executes the orders of the director and appoints a purchasing agent, with offices, clerical force, and facilities for purchasing and storing supplies. Last, is an unpaid board of visitors, who have no authority except that of listening to complaints, which they cannot correct personally, but may report to the central board. This somewhat involved plan provides control galore. First a central board, second a director, third four executive secretaries, fourth a business agent, and fifth a purchasing agent with expensive offices, clerical force and storehouses. This plan, much more complicated than any previous method, is the latest academic creation of the professional efficiency expert. It is difficult to see how either efficiency or economy can be secured through such a complex and expensive organization. Whatever modifications of the original plan of centralized control may have been adopted, the ultimate purpose has been the withdrawal of local management from the institutions and the substitution of a central board with plenary, fiscal, and administrative power. Assuming that these two functions can be separated, what are the objections to administrative management of state institutions by a central board? First, too many and varied duties are imposed upon a single board. It is questionable whether three or even five officials at a central office can be of as great service to the charitable and penal institutions as local boards of trustees in close touch with individual institutions. The amount of time which a central board can give to the administrative details of many institutions of diverse character, situated in widely separated localities, must of necessity be quite limited. The problems vary greatly in the different institutions. Those of the feeble-minded

schools are not identical with those of the insane hospitals. Even the institutions for the insane differ among themselves. The hospitals for the acute, the chronic, and the criminal insane present peculiar and special problems, whose solution demands more time than a single central board has at its command. Neither can these special questions be satisfactorily settled by a board of visitors upon whom rests no final responsibility. What incentive or satisfaction can a board of visitors experience who feel they have no responsibility and who do not know that their suggestions or advice will be heeded by the real managers?

Second, lack of sympathy between the central board and the various hospitals. Successful administration of hospitals and charitable institutions depends directly on the active sympathy and personal interest of their boards of managers. Such interest can only be secured by intimate personal contact, frequent visitation, and close familiarity with the inner working of the hospital, and acquaintance with the actual needs of the patients. Weekly conferences at some central office between the superintendents and the board of control are not as helpful and stimulating to the superintendent as were the frequent visitations of the trustees and their meetings at the hospital, with free opportunity for consultation and helpful suggestion. A central board of control, with many duties and numerous widely separated institutions for visitation and supervision, must give brief and perfunctory service to each. The very fact that it is physically impossible for the board to give the necessary time to the several hospitals renders the service mechanical, and deprives the superintendent of the advice and consultation he so much needs. It is doubtful whether a board of control, visiting many institutions, can ever be in as close sympathy with the work of any particular institution as a local board of trustees who are devoting their time to the service of that institution alone.

Third, the elimination of women from any participation in the management of the hospitals. The principle is now firmly established that women should be represented on the boards of managers of any institution caring for women and children. Whether it is because members of boards of control are really political appointees, or because women are not supposed to be equal to the larger duties attaching to this service, it is significant that whenever trustees of state hospitals have been replaced by a central board of control, women have not been represented in the new management. In some states women have been relegated to the inconsequential boards of visitors, which really means that they have been removed from all actual participation in the activities of the hospitals.

Fourth, the possibility of politics entering the management of state charities. Under this system, the danger is always imminent that par-

tisan political preference may determine the personnel of the official board directing the state's charities. Government of state institutions by boards of trustees possessed this one great merit, that the men and women composing these boards were selected solely because of their fitness, without any reference to their political affiliations. General fitness and adaptability for the work and not political patronage should determine the selection of men for these positions. It is willingly conceded that most excellent men have been and still are being appointed on these boards of control, but the possibility that political considerations may at any time influence their selection is a menace. State charities should be as free from political interference as private charities. Fifth, the principle that the medical administration must be separate and distinct from the business administration, is not sound in theory nor beneficent in practice. In institutions ministering to human illness or defect the medical and the business relations are so intimate that complete separation is not possible without defeat or impairment of the very work for which these institutions stand. Any plan that seeks the divorce of the medical from the business administration is in danger of commercializing charity. The state hospitals for the past twenty-five years have been steadily assimilating the true hospital spirit. Treatment has been assuming greater prominence. The old almshouse treatment of insanity, based on economy carried to parsimony, has well nigh disappeared. The state hospitals have entirely reformed these obsolete methods. Trained nursing, carefully prepared dietaries, study of individual cases with proper treatment, both medicinal, psycho-therapeutic, and hydropathic, industrial employment, pathological research, prophylaxis, field work, and after-care all enter into the work of the hospitals, and are all essential medical questions. Any attempt to isolate and withdraw these activities from the business administration of the hospital is impossible. The general hospitals have long since demonstrated that the medical and the business administration cannot be separated without detriment to the usefulness of the hospital. From this let it not be argued that extravagance will follow, nor that it is desirable or necessary. The real problem is, how the business and the medical administrations may be correlated, and some workable plan devised by which the mission of the hospitals may be efficiently and economically realized.

It is not absolutely certain that central purchasing by a single purchasing agent is as economical as local purchasing by the institutions under competitive bids with central fiscal supervision and audit. The purchasing of supplies for a hospital is not identical with the purchase of supplies for a large railway or mercantile corporation. The character of many of the goods used in hospitals, the danger of dete-

rioration, and the expense of central storage and distribution render the economy of this method doubtful. Such plan can only be economical in large states with many institutions of a single class, and even then is of doubtful value.

In his exhaustive analysis of the "Methods of Fiscal Control of State Institutions" made for the State Charities Aid Association of New York State, Henry C. Wright finds that of the three methods of supervision studied, namely, those of New York, Iowa, and Indiana, the greater saving was in Indiana, in which state the institutions are managed by local boards of trustees under the supervision of a state board of charities. "The larger costs noted in connection with New York and Iowa are, in large measure, the cost of supervision of details of the administration of the institutions, which, in Indiana, remains in the hands of the superintendents of the institutions. These details are handled as satisfactorily by the superintendents in Indiana as by the central supervising officers in New York and Iowa." Undoubtedly in this statement lies the exact truth,—any theoretical saving by central administration is more than offset by the increased expense of maintaining the system.

There is no reason why, under a well-devised plan of coöperative and competitive buying, the institutions cannot purchase goods of the same quality as economically as a central purchasing agent. It is easily possible for a man, intent on buying only the cheapest goods, and unfamiliar with institutional requirements, to purchase inferior articles, the attempted use of which will cripple the efficiency of the institution. In a hospital the judgment of an experienced medical superintendent may be wiser than that of a lay buyer, unfamiliar with the real needs of the institution. On this point Mr. Wright says: "It seems difficult for the fiscal supervisor to bear in mind that the primary function of the institutions under his charge is, where possible, to heal and reform. There is a mass of evidence which will make it appear that his first concern is for small economies rather than for efficiency in operation."

In those states where boards of control have been or are about to be established, many of the evils of such a system can be forestalled by having at least one woman on the board, by holding stated meetings of the board at the various institutions at least once a month, by making the purchasing agent, where such an official exists, an agent and not a member of the board, and by legislation requiring the board to give their entire time to the work, with such remuneration as will secure an able and efficient personnel. Merit and experience, and not partisan political influence should determine the selection of the membership. The presence of a woman on a board of managers having the custody of women inmates in various institutions is most desirable.

In countless administrative matters her experience and point of view may prove most helpful. Her active presence in meetings would contribute greatly toward removing the charge and danger of political bias. By holding regular monthly meetings at the institutions, the board comes into more intimate and personal relations with the institutions and their work than when board meetings are held at a central place, as the State House. The management of the institutions in consultation with the board of control, and not the purchasing agent, should standardize and determine the selection of goods, not an independent buyer whose sole aim may be price, not quality, and who personally may be quite unfamiliar with the actual needs of the institution.

In Maryland a most admirable system of co-operative buying has been adopted in the state institutions. According to this plan the hospitals have a central bureau, to which all requisitions are sent at stated times. All institutional supplies are standardized and samples are on exhibition at this office. From this office advertisements for proposals are sent out and contracts signed with the lowest bidders. Little expense is entailed under this method, and the institutions secure the class of goods they require at the lowest possible cost.

The peril that at the present time menaces state care of the insane is excess of control. The institutions and the officers who manage them may become so hampered by petty supervision as to lose efficiency in operation and management. Just as the overtrained athlete loses his spirit and his nerve at the crucial moment, so will the hospitals under excess of control forfeit the true hospital spirit and the initiative that formerly prevailed. There is danger that they will become mere receptacles for housing and feeding large numbers of inmates without showing any very great financial saving for the state, thereby losing sight of the scientific and therapeutic aims for which these institutions stand.

After all why is this expensive machinery of control necessary, unless to provide many more high-salaried officials? Mr. Wright in his report with great justice states that what the institutions and the superintendents most need is advice of experts, uniformity of accounting and reporting, and standardization, as far as is possible, of all hospital supplies. The securing of these considerations does not require complicated and expensive supervisory boards. What is really needed is central fiscal supervision, with as large a degree of local independence as is necessary to secure efficiency and economy.

Mr. Wright's recommendations contain much that will appeal to the trained institutional worker. A central supervising board, serving without pay, and having "function of inspection, recommendation, and advice, combined with a partial power of control." This board to have as salaried secretary a man of "marked

ability," and familiar with institution requirements, and also empowered to employ experts, as they may be needed to give advice on all matters pertaining to the life and well-being of the institutions. Boards of managers with women representatives appointed for each institution by the governor. Advisory relations to exist between the supervising board and the managers. Stated conferences between the superintendents and the managers. Joint purchasing of supplies with such expert advice and laboratory tests as the supervising board may deem necessary. Under some such general scheme the state will maintain control over all expenditures, its interest in and direction of its charities will be attained with the smallest possible outlay. Individual civic responsibility to the state will be secured through volunteer workers. Public charities and correction will not be imperilled by partisan political interests. Efficiency, economy, continuity, and permanence of service will characterize the management of our state institutions.

THE PRE-OPERATIVE DIAGNOSIS OF TUBERCULAR MESENTERIC AND RETROPERITONEAL GLANDS.

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WITH the advent of greater perfection in the technic of the Roentgen ray examination and diagnosis of abdominal conditions there is still felt the need of greater refinement of diagnosis of the acute conditions, especially of the right lower quadrant.

The clinical investigation undertaken in this paper was stimulated by the recent occurrence in the author's practice of several cases strongly simulating appendicitis and distinctly of the operative type, but which on opening the abdomen, were found to be what I think we can properly term the acute fulminating type of retroperitoneal or mesenteric adenitis of tubercular origin.

The attempt is made in this paper through the analysis of a series of autopsy and clinical records to throw some additional light on the pre-operative diagnosis of this condition,—primary retroperitoneal and mesenteric tubercular adenitis.

The type of this disease, which is secondary to general or intestinal tuberculosis, is not considered in this paper, but only that type which has recently come to be recognized as a definite and separate clinical entity, but which so often simulates and is mistaken for the acute conditions occurring in the right lower quadrant of the abdomen.

This type of case occurs quite frequently in

both private and hospital practice, especially in children and young adults.

Clinical surgical experience shows that there are certain cases which present a definite picture of an acute right lower quadrant condition, most often simulating appendicitis, which on operation show a normal or slightly congested appendix and no other pathology than masses of retroperitoneal glands in various stages of enlargement and in which no other tubercular foci can be found anywhere in the body on most careful examination.

These isolated glands or groups of glands may occur anywhere in the mesentery, but are most commonly found in the ileo-cecal region.

Corner, who seems to have had considerable experience with this class of case, and to whose papers many references are made in the literature, thinks that there is a physiologic reason for this location in the comparative stasis of the products of digestion in a mildly alkaline medium at this site; a condition which favors the passage of tubercle bacilli through the intact mucous membrane of the bowel.

Corner also believes that tuberculous mesenteric glands are to be found in practically every child in which an abdominal operation is necessary. This great frequency and the fact that glandular (non-tubercular) enlargement is so common in other regions of the body in children coincident with any pathologic condition, makes the raising of the question of the tubercular nature of these glands in children a pointed one.

There are many reported instances in which the removal of an apparently normal or only slightly congested appendix was followed by the subsidence of all symptoms and even by the disappearance of glandular enlargements. And whether we grant that this mesenteric adenitis, in very young children, is of tubercular origin or whether it be a simple adenitis so common in all inflammatory or other conditions in young children, the facts still remain that this type of disease often does produce a chain of acute right lower abdominal symptoms of such a type as generally to demand surgical intervention. It seems arguable to the writer that as these glands are so commonly found in many conditions in young children, for which the abdomen is opened, and as these children ultimately go on to complete recovery from their surgical condition and do not suffer in the future from further enlargement of these glands, therefore we may believe that a mesenteric adenitis is a common condition in children, from which they recover spontaneously, also from which it is the exception rather than the rule to have symptoms; that these are probably more likely to be of inflammatory than tubercular origin and from which they may be expected to recover without further morbidity.

When we discuss this condition in adults, however, it seems reasonable to suppose that glands which have persisted since childhood or have developed recently are much more likely to

be tubercular in origin and that in them we may expect the clinical picture described in this paper.

Corner believes that milk and the bovine type of tubercle bacilli are the primary factors in the causation of this disease, and when the condition is in an advanced stage and there are many glands in the lymphatic chain Talbot has shown how the absorption of fat may be prevented by the blocking of the lymphatics by these glandular masses.

Three or four pertinent questions arise in the diagnosis and treatment of this class of case.

1. If the history, past and present, and the physical signs are carefully gone over, is there not a symptom-complex or certain more or less distinctive picture by which we can more accurately make the preoperative diagnosis?

2. How can this condition be differentiated from appendicitis?

3. What is the prognosis? With operation? Without operation?

A brief review of the essential facts to be noted in this type of infection is as follows:—

1. The disease is extremely common in infancy and childhood, but by no means confined to this period, being nearly as common in young adults. In fact, the highest percentage favors the years between 6 and 18. It is not uncommon in persons up to 40 years of age. One case in this series was 58 years old, but occurrence at such a late age is extremely rare.

2. Corner's attempt to divide the condition into an adult anatomical type which occurs in the region of the cecum and gives pain in the stage of caseation, usually diagnosed as appendicitis without palpable tumor, and a type peculiar to young children in which there are palpable glands usually in the free mesenteric edge of the small intestine, we believe should not be made, as numerous cases in this series and those reported by other writers show no difference in type assignable to age; both types being found in the very young and in the adult.

3. Two clinical types, however, are noticeable:

(a) Distinctly palpable masses of glands accompanied by none or only vague abdominal symptoms.

(b) Cases with alarming abdominal symptoms and signs developing suddenly when there are no palpable glands demonstrable.

It is a notable fact that unless the glands are sufficiently enlarged to form palpable masses there are probably no symptoms present which would suggest a tubercular infection, while when there are pronounced symptoms such as diarrhea, night sweats, temperature, etc., it is probable that there are other tubercular foci elsewhere in the body which are causing this train of symptoms and that they cannot be referable alone to the mesenteric involvement. On the other hand, primary mesenteric glandular tuberculosis may be the only underlying cause of a train of sudden acute right lower quadrant

symptoms demanding surgical relief. For this reason the diagnosis is often difficult or impossible.

Symptoms:—

(a) There may be none; even in the presence of palpable masses of gland.

(b) The condition may be discovered only at operation for some other condition; the glands being too small for palpation through the abdominal wall.

(c) Trivial symptoms such as fleeting and not severe right-sided or general abdominal pain with or without disturbance of digestion and bowel regularity, the general health being good or the patient being of the pale rather "sickly" type.

(d) More or less constant fairly well localized abdominal pain with generally a "soreness" referable to the region of the cecum; the most likely situation of the growth. Physical examination may or may not show the presence of resistance or an ill-defined glandular mass.

(e) Sudden (or gradual) onset of general, then localized abdominal pain confined to the right lower quadrant, rise in temperature up to 99, 100 or 101°, nausea and vomiting, constipation or diarrhea, and on physical examination, acute localized tenderness with spasm and resistance, a white count up to 12 or 15 thousand, and a very sick appearance. There may be distention, complete obstipation, severe vomiting and all the signs of obstruction. (This latter, however, is rarely present unless there is a real obstruction, which is due to extension of the tubercular process matting and binding intestines together.)

That the process is sometimes a fulminating one and that the glandular enlargement sometimes precedes a general tubercular peritonitis and may be cured by operation is shown in the following case of this series.

L. L. H., 9 years old, had lived in a country district, had had much out-of-doors' life, but had never been very robust. He was pale but considered healthy. He had had no previous illness. He was taken suddenly 48 hours before seen by the writer with sudden general abdominal pain, nausea and a few watery bowel movements followed by constipation. Castor oil, given by the local doctor, was vomited; the patient looked sick and had a slight fever. As no improvement took place in 48 hours he was transferred to the writer's care.

P. E. showed distended abdomen, general abdominal tenderness, no masses. Temp. 101°, W. C. 9000. A diagnosis of intestinal obstruction, probably due to intussusception, was made. At operation the lower ileum was found adherent to the side of the ascending colon near the cecum, and to a large ulcerated T.B. gland in the mesentery. Several smaller glands were found in the adjacent mesentery. Exploration of the rest of the abdomen failed to show any other pathology. The peritoneum was smooth and not injected. The convalescence progressed satisfactorily but slowly till the 11th day, when signs of further intestinal obstruction developed and the abdomen was again opened

and a few fresh adhesions freed, and to the great surprise of the operator and his assistants the whole peritoneum, both parietal and visceral, was found to be thickly studded with tubercles, several of which were excised and reported to be tuberculous. The convalescence from that time was uneventful. The patient has been seen four times since at intervals of a year apart, has gained in weight, there are no masses or fluid present. This case is of unusual interest in that the development of the tubercles took place so rapidly after the first operation. The patient has at present a hernia in scar, for which it is hoped he will seek operation later. The final condition of the abdomen can then be recorded.

It is evident, therefore, that we have in *tabes mesenterica* a condition which, like appendicitis, the lesion with which it is most often confused, has a variety of symptoms and signs, none of them distinctive in themselves and from the analysis of which we are seldom able to make an exact preoperative diagnosis.

If the patient is pale and "sickly," has had more or less localized right-sided abdominal pain and has a low fever and white count with palpable glands and is a child or young adult, the diagnosis is easy, the picture being clear. But in the absence of palpable glands and with an acute onset with high fever and white count the condition is naturally diagnosed as appendicitis.

With the idea of perhaps shedding some light on the question, especially of symptomatology and past history in these cases all the autopsy records of the Massachusetts General Hospital have been gone over and these cases analyzed from a pathological as well as from a clinical point of view.

In 65 cases in which one or more retroperitoneal or mesenteric obsolete or active tubercular glands were found at autopsy, the clinical record of each case was looked up, especially from the point of view of past history, previous health, and attacks of abdominal pain. And in so far as hospital records show or are of value in determining this point, none of these 65 cases had anything in their past history which could be interpreted as referable to the presence of tuberculous retro-peritoneal or mesenteric glands.

These cases of course do not include those cases operated on for this condition, but only cases in which a diagnosis was *not* made before death, and one or more glands were found incidental to other conditions at autopsy. This seems to indicate that very many people harbor obsolete or quiescent tubercular glands of even considerable size without ever having any symptoms referable to them.

This is well illustrated by the fact that in 4 cases the glands were adherent to the intestines, in 3 there was ulceration present, in 5 there were great numbers of glands and in 5 masses the size of the fist or larger were present, and yet no symptoms resulted.

These masses are variously described by the pathologist as follows: Obsolete tubercular mesenteric glands, large masses of obsolete tuber-

cular glands adherent to wall of the intestine, many retroperitoneal glands along the wall of the aorta, mass size of an egg caseous and calcareous, soft tubercular mesenteric glands, adherent tubercular nodes in the mesentery, retroperitoneal and in the omentum, soft and caseous glands, slightly ulcerated at base, large fibroid calcareous mass near the cecal valve; and yet no symptoms could be found in the past or present history referable to these masses, the patients dying of such conditions as broken compensation, pneumonia, typhoid, brain abscess, septicemia, glioma of brain, aortic regurgitation, pyonephrosis, appendicitis, empyema, etc.

It is fortunate that there is never much question as to the treatment in the acute cases. The condition is an acute adominal one and demands surgical relief.

Adhesions may be found with true ileus, ulcerated or necrotic glandular masses may demand removal or drainage, or large masses of glands producing pain may also demand removal. This latter circumstance is well illustrated by a case reported by Newbott in which appendicitis was diagnosed but only a few calcareous glands found in the mesentery of the lower ileum at operation. These were not disturbed, the appendix only being removed. After operation the patient complained of the same pain as before operation; six months later the abdomen was reopened and the glands removed, with prompt relief of symptoms.

The indication seems, therefore, to be for the removal, in the absence of other pathology, of plainly palpable glands which evidently cause symptoms.

In view of the fact that cases of tubercular mesenteric adenitis get well from the mere opening of the abdomen, as tubercular peritonitis cases recover after the same procedure, and that this is the testimony of many surgeons seeing numbers of these cases, it seems reasonable to state that when there is no indication for drainage and the masses do not readily lend themselves to enucleation, good results may be expected from non-interference and proper after-care.

The much mooted question of why cases of tubercular peritonitis so often recover after simple exploratory laparotomy, seems to find its answer in this type of case. We have learned the pathology by our exploratory operation. The patient is then put under the best hygienic conditions to combat his tubercular tendency, he has proper care, his symptom responds to treatment and he overcomes an infection which in many people lies dormant for years without causing symptoms at all. It is not the fact that the abdomen has been opened to fresh air or sunlight that effects a cure, but the fact that the patient from then on has proper care, based on an accurate diagnosis.

An analysis of 30 cases operated on at the Massachusetts General Hospital for some more or less acute abdominal condition, and in which

definite mesenteric or retroperitoneal glands were found at operation, show some points of value.

There were only 3 cases in which the glands were retroperitoneal, the mesentery about the cecum being the common situation.

It is interesting to note and pertinent to the purpose of this paper that in only 3 of these 30 cases was the diagnosis of *tabes mesenterica* made previous to operation.

Other preoperative diagnoses were: appendicitis 10 cases, ileus 3 cases, abdominal tumor 4 cases, pelvic 3 cases, while in the remaining 7 cases the record does not state what diagnosis was made, but as symptoms and physical examinations were described it is evident that the appendix was the organ suspected. In the 30 cases the tuberculous glands were found to be undoubtedly the cause of the symptoms complained of in 17, or a little over half of the cases; in 4 cases it was an open question as to whether they alone could have caused the symptoms, although it was probable, because of their enlarged condition, that they must have been a contributing factor; while in the remaining 9 cases they were small in size and were undoubtedly only secondary to other coincident and more pronounced lesions.

When we try to gather information which will aid in making a correct preoperative diagnosis we are not greatly helped, for only symptoms commonly complained of by those suffering from chronic or recurrent appendicitis are obtainable. For instance, 13 cases had previous similar attacks; of these 8 had general abdominal pain, while 13 (or all the cases) had localized pain either in the previous or present attack.

Of course the physical sign which would be of most value in making a differential diagnosis would be the presence of palpable masses. In 12 cases such masses were demonstrable before operation and in 3 others were discovered when the abdominal wall was relaxed under ether before operation. In 12 cases the history definitely states that no masses were to be palpated. It is here of interest to note that in spite of the fact that masses were palpable in these 12 cases, yet the diagnosis of *tabes mesenterica* was made in only 3. The masses generally being diagnosed as abdominal tumor in 4 cases, appendix abscess, pus tubes and in one case floating kidney. This fact certainly shows that unless distinct chains of glands are to be felt, the history is not distinctive enough to suggest a condition of *tabes* in preference to some more common condition.

The rapidity with which such a process may develop is illustrated by a case in which an appendectomy was done in 1910 and no glands were noticed, although the abdomen was thoroughly explored in routine. In 1913 the case was operated for acute intestinal obstruction and a mass of matted tubercular glands found binding the intestines together. The case recovered. The recurrence of other extra-abdom-

inal tubercular glands coincident with the mesenteric glands seems to be rare. In two cases of this series, glands were present in the neck and groins.

In no case did the white blood count exceed 15,000 except in one in which there was a coincident appendicitis and pelvic abscess. We can, therefore, expect little aid in diagnosis from the blood count.

Operative methods employed have been as follows: Exploratory laparotomy only, recovery one case; 7 cases were curetted and drained; in four cases the masses were too extensive for any operative removal. In two cases the glands were shelled out. The remaining glands were too small or inaccessible or considered too far removed as a cause of symptoms to warrant attempts at removal.

The mortality in this series was 2 cases, or 15%, both cases dying from postoperative pneumonia and not as a result of extension of the process or general miliary tuberculosis.

Two cases were discharged from the hospital with a sinus, but others which were opened and drained, curetted or swabbed out with iodine, completely healed and now show no sinus. In these 30 cases, five have been complete recoveries. In four there is some mass still present, but the patients have no symptoms. Two cases have had similar attacks since operation but consider themselves well. The remaining cases have failed to report up to the present time.

SUMMARY AND CONCLUSIONS.

1. *Tabes mesenterica* is often a primary disease with sometimes a fairly distinct clinical history and signs. It most often simulates acute appendicitis, and when in this stage should demand surgical intervention.

2. In the absence of palpable glands, however, it is impossible to make a correct preoperative diagnosis in many cases, there being no symptom-complex distinctive enough of this condition.

3. A great many people harbor tubercular mesenteric glands in various stages of activity without symptoms.

4. The disease has two clinical types: (a) a slowly progressing one, generally with palpable glands; (b) an acute fulminating type, most often simulating and impossible generally to differentiate from appendicitis.

5. The prognosis in the subacute stage is good without operation. In the acute stage exploratory laparotomy should be done, but the glands not removed unless there are definite indications either from adhesions, ulceration or size of mass producing pain or mechanical obstruction.

6. In children and young adults with a history of right-sided abdominal pain, with or without palpable masses, *tabes mesenterica* should always be considered as a possibility.

I wish here to express my thanks to the surgical staff of the Massachusetts General Hospital

for permission to analyze the records of cases operated on in looking up this subject.

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A LOCALIZED, SUBACUTE FORM OF BRONCHIO-PNEUMONIA.

BY RALPH C. LARRABEE, M.D., BOSTON.

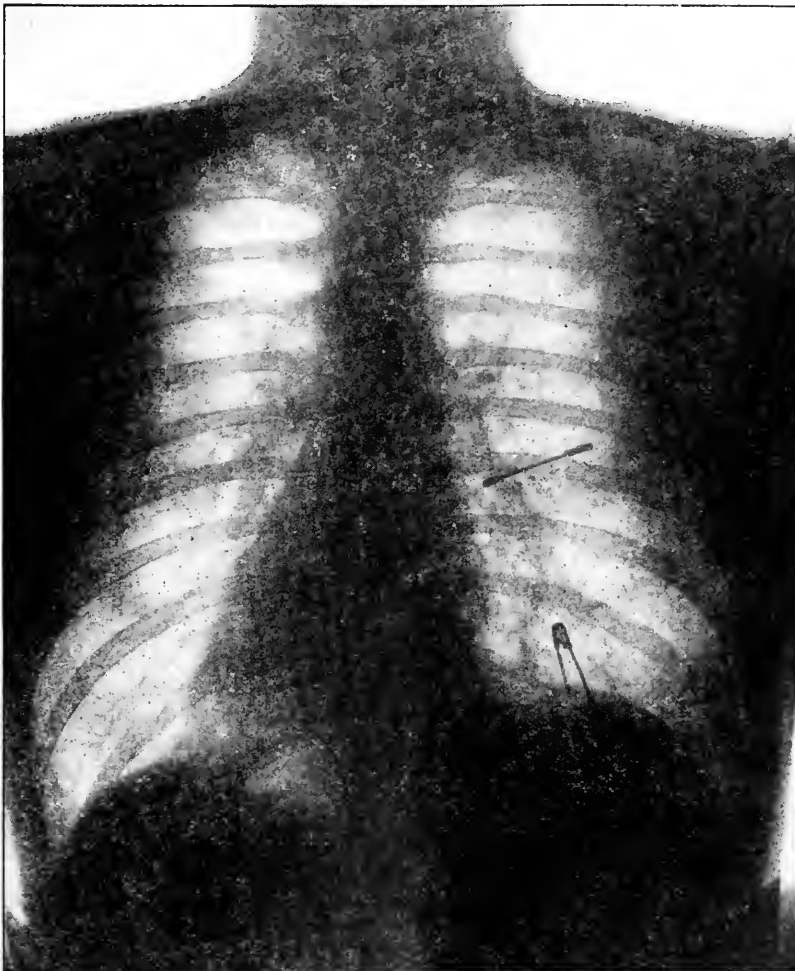
W. J. P., a male nurse, age 46, was admitted to the City Hospital on August 4, 1913. He had always been well. About ten or fifteen days before admission he began to cough; this symptom being at first mild, and later only moderately severe. The expectoration was abundant and was stated to have shown slight streaking with blood before admission. He had no pain and was just about sick

enough to stay in bed. He stated that, before entering the hospital, his temperature had been as high as 102.2°, but the highest record thereafter was 100°. It ran a low, irregular course and did not remain normal till after the thirteenth day in the hospital, its total duration being three or four weeks. There was nothing like a crisis.

In the lower half of the right back there were numerous, coarse, moist râles. At first there was no dulness and no change in the voice or breathing sounds. Later the râles became finer, and there was more or less dulness and diminution of sounds. Consolidation was never recognizable by physical examination.

The leucocytes were 21,200 on admission, later counts being 19,800, 10,000, 9,600, 11,500 and 15,200, the two latter being obtained after convalescence appeared to be well under way. The x-ray showed a slight, but definite shadow in the lower, outer portion of the right lung, occupying in the plate merely the corner of the lung outside the swell of the diaphragm. There was also some increase in the intensity of the markings, usually considered to be due to the blood vessels or bronchi.

The sputum was examined for influenza bacilli and several times for tubercle bacilli, always with negative results.



W. P. Age 46.

Broncho-pneumonia at right base. The normal markings in the lung are somewhat exaggerated. There is a distinct shadow just outside the swell of the diaphragm.

The patient improved very slowly. The physical signs cleared up gradually, examination being recorded as negative about one month after admission. The total duration of illness, from onset to discharge from the hospital was 58 days.

This case is reported at length as it represents a type which, though very common, has received little notice in medical literature. I have seen a good many such cases in the past few years. This paper is based on a study of seventeen seen in the wards of the Boston City Hospital and in private practice. Perhaps as many more were seen in the out-patient department of the hospital, but these were not included, nor were cases seen but once in private practice or in consultation. The condition may be described briefly as a pulmonary infection, localized in the lower portion of one lung and characterized clinically by lack of definite consolidation, mild course and long duration. Riesman,¹ in 1913, described a series of cases of "A Lobar Form of Broncho-Pneumonia of Long Duration, Occurring in Children and Young Adults." His description corresponds very closely to that of my cases.

About two-thirds of my cases were in males. Their ages varied from ten to seventy-five. In this respect they differ somewhat from Riesman's, which were mostly children and adolescents. Perhaps this is because of the different character of the material making up our respective clinics. My cases occurred at all seasons of the year. I have seen many in the summer. This is in contrast to lobar pneumonia, which is very much more prevalent in winter and early spring.

The onset is usually gradual. Only one of the cases collected in preparing this paper had an initial chill. One other had a chill with a temperature of 102° F., occurring after a "cold" of a week's duration. The notes usually state that the patient "began to cough" or "had a cold." Medical care is usually called for only after the patient has been ill for several days or even two or three weeks. Not uncommonly the patient seeks relief only because the cough and malaise have not cleared up as they usually do after a cold.

The most striking symptom is cough, often severe, bothersome and persistent. Pain was present in but two of my cases. More or less fever is generally present at some stage, though I have seen several cases in which a fairly complete record showed a normal temperature throughout. It may be as high as 103° for a day or two, but the common finding is a low, irregular curve, the daily maximum being 101 or 102°. It varies a good deal in duration, sometimes lasting several weeks, sometimes but a day or two. Recrudescences are common. As might be expected in such curves, the termination is indefinite. I have, however, seen two cases in which the fever was high enough and the termination abrupt enough to constitute a real crisis.

But the end of the fever is by no means the end of the disease. Signs and symptoms may persist for weeks or even months after defervescence.

The physical signs are so definite that the nature of the process can generally be recognized at the first examination. One caution is, however, in order. The nature and distribution of the signs are such that unless one is in the habit of making a thorough examination in every office patient or out-patient, with the shirt and corsets removed and the whole chest exposed, they will often be overlooked. Percussion generally shows dullness, low down in one back or axilla, often so slight as to be discoverable only on careful comparison of the two sides. This impairment of resonance usually increases as time goes on, and it may persist after other signs have disappeared. Changes in the voice and breathing are relatively unimportant. The sounds may be increased in intensity at first, and may have to a slight degree the bronchial character that suggests consolidation. Frank consolidation does not occur, or if it does, it is of very limited extent and of very short duration. Later on, both sounds and fremitus are more apt to be decreased.

The most characteristic feature is the râles. They are generally very numerous and easily heard if one listens at the right spot,—most frequently the extreme base. They are very persistent. In character they are coarse or medium, crackling, moist or sticky. With all due allowance for personal variations in the use of descriptive terms applying to râles, I cannot agree with Riesman that they are "consonating"—I think this is very unusual. All these signs are characteristically localized in the lower back or axilla on one side. There may be, for a short time, a few râles at the opposite base or scattered over the lungs, but the most striking feature is the persistent presence of a burst of moist râles at one base.

Satisfactory x-ray plates were obtained in six cases. In two perfectly typical ones the results were negative. In the others definite shadows were present over areas corresponding to the physical signs. The shadows observed have been less intense than in typical lobar pneumonia and even less sharply circumscribed. They have not, as a rule, corresponded in extent with a whole lobe, but have been limited, like the signs, to the lower portion of one lower lobe.

The sputum varies in amount from very slight to very abundant. Blood was present in but two of my seventeen cases,—once for a few days at the onset and once as rare and slight streaking, also in the early days. Tubercle bacilli were sought for in most cases, often repeatedly. Of course no case is included in which the findings were positive.

The leucocytes were counted in thirteen cases. In four the maximum figure was under 10,000, in one between 10,000 and 15,000, in two between 15,000 and 20,000, in four between 20,000 and

25,000, and in two over 25,000. Thus, in the majority of cases there was a leucocytosis corresponding to that of mild lobar pneumonia. In several instances the persistence of the leucocytosis was very striking, it having lasted well into convalescence, after the symptoms and signs had well-nigh disappeared. Persistent leucocytosis, then, is a striking feature.

Blood pressure observations were made in most cases, without striking results except in one instance. This was a man of fifty-eight, whose urine showed albumen and casts for a few days during the height of the disease. The systolic pressure was persistently low—70 to 75 millimeters of mercury. During convalescence it gradually rose, but as late as two months after the onset, long after he had left the hospital, it was recorded as 100.

The duration of cases of this type is indefinite and variable. In my longest case, a boy of ten, localized râles persisted for eight months, and after fourteen months' dulness was still present. In several instances the signs cleared up in a few days. It is not infrequent for the cough and râles to last for six weeks, and dulness with an occasional crackle as much longer.

Diagnosis depends upon the recognition of a localized infection of the lung, physically characterized by slight dulness and numerous moist râles, without frank consolidation, running a mild but protracted course. It may be differentiated from lobar pneumonia by the milder but more persistent course, the low fever, the lack of sudden onset and critical termination and especially by the absence of frank consolidation. Bronchopneumonia of the ordinary sort is usually secondary to other diseases, is commonest in children, is apt to be more severe and is typically bilateral in its distribution. Bronchitis is seldom persistently limited to one lobe, will rarely be accompanied by marked leucocytosis, and will not show dulness to percussion nor changes in the shadow cast by the lung parenchyma on the x-ray plate.

The question of tuberculosis naturally often arises in these cases, particularly when cough, debility and perhaps some loss of weight have persisted for weeks. One of my first cases was recommended to a sanatorium for tuberculosis by one of our best specialists and was accepted by the admitting physician. I found only a burst of râles at one base, and advised delay in the institution of sanatorium treatment—a somewhat risky bit of advice. Under reasonable care her signs and symptoms promptly cleared up, but it was long before she recovered from the emotional shock of that dreaded word, "tuberculosis." It is best to delay the use of that word where symptoms have existed but a few weeks and the signs consist of dulness and a burst of râles at one base.

The prognosis is almost invariably good. In only one of my cases, a feeble old gentleman with advanced arteriosclerosis, was there a moment's

anxiety as to the immediate outlook. The disease is usually very mild. Most cases will be confined to bed for at least a few days, some not at all, some will keep at work. It is, however, best not to state the probable duration. Even a strong young man, with slight symptoms and signs, may be incapacitated for weeks.

No form of treatment is likely to produce any astonishing immediate results. The patient should be confined to the bed as long as fever persists, with a reasonable margin of safety. Afebrile cases may be simply confined to the house. I have treated a number as office patients, and as hospital out-patients throughout. In reasonable weather they do best out-of-doors, but here, as in everything else, common-sense must temper enthusiasm. The writer does not believe that any acute pulmonary infection should be exposed regardless to the full rigors of a New England winter. Of course no drug will materially affect the pathologic process; yet sedatives like codeine and expectorants like ammonium chloride will harmlessly lessen the discomforts of a severe cough with scanty tenacious expectoration. In two cases autogenous vaccines were prepared from pneumococci isolated from the patients' sputa. One seemed to be benefited, but of course nothing can be inferred from such a limited experience.

What is the pathology of this condition? It is certainly an infection for it is accompanied by fever and by leucocytosis, and the general picture is obviously that of a bacterial disease. In the cases upon which I have notes, no careful bacterial examinations of the sputum have been made, but observations made in the course of preparing vaccines for two cases have shown a variety of organisms, always including pneumococci. It is distinctly possible that some were influenzal infections. Influenza bacilli were sought for in but one case, and they were not present in that one.

It is not bronchitis, since the presence of dulness, changes in sounds and fremitus, and above all, the x-ray evidence of increased density show involvement of the lung parenchyma. It is not lobar pneumonia, as there is never any evidence of extensive frank consolidation, nor does the clinical course of the disease correspond to that of this condition. Riesman's view that we are dealing with a lobular or catarrhal pneumonia is probably correct. The principal departure from the usual type is that it is confined to one lobe or to a portion of one lobe, and that it runs a milder and frequently a more protracted course.

In one or two cases the patient had cardiac decompensation and the pulmonary condition was apparently an infection of one of the edematous bases. The course, however, apart from the cardiac condition, was not dissimilar to the others except in severity.

In acute infections of the lungs we recognize certain conspicuous types, such as the ordinary forms of broncho- and lobar pneumonia, bron-

chitis and pleurisy. But we often meet with infections due perhaps to the same organisms, which we cannot classify under these headings. In the writer's opinion the class of cases to which this paper has reference constitutes a sufficiently definite type to deserve a pigeon-hole of its own.

¹ Riesman: Amer. Jour. of Medical Sciences, 1913, cxlvi, 313.

THE FIELD FOR LOCAL ANESTHESIA AND OF SPINAL ANESTHESIA IN GENITO-URINARY SURGERY.

BY ARTHUR HALLAM CROSBIE, M.D., BOSTON.

DURING my present service at the Boston Dispensary the importance of local anesthesia has been brought to my attention with such force that I feel that it is worth while to speak of some of its uses. Probably many others here are using it as much, but there may be many like myself who have hitherto neglected its use to the fullest extent in out-patient clinics.

The matter was especially brought to my notice by Dr. Rosenkrantz of Los Angeles who had just returned from three years' study and practice in Germany and Servia. He was shown several cases of epididymotomy that we had done for acute epididymitis. These cases had been done under ether either at the patients' homes or at a hospital. I was deploring the fact that we had many such cases that should be operated upon, but they could not go to a hospital nor could they have it done at home. He suggested doing the operation in the clinic under local anesthesia, although he had not seen it done. I felt that it was too much of an operation for an out-patient clinic. Very soon, however, I operated upon two cases of acute epididymitis, using a 2% solution of novocaine, to which had been added a small amount of adrenaline. The results were so good that now Dr. Augustus Riley and I do even the most acute cases



FIG. 2.—The needle inserted into the inguinal canal.



FIG. 3.—Injecting the region about the globus major.



FIG. 4.—The line for circumjecting the cord and the line of incision.



FIG. 5.—Infiltrating the cord.

under it. We use from 20 to 30 c.c. of a .5% to 2% solution of novocaine to which are added from 3 to 6 drops of adrenal solution 1-1000. We use usually 1% novocaine as it seems to give just as good anesthesia as 2%, especially when used with adrenal solution.

The method we use is much the same as Braun, in his recent book on local anesthesia, advocates for any operation on the testes. The best syringe is a 10 c.c. glass syringe with a two-inch needle. The first step is to infiltrate the cord. This is done by grasping the cord, at the point where it emerges from the external ring, between the thumb and forefinger of the left hand. From 5 to 10 c.c. of solution is injected in all

directions into the cord in order to be sure to block all the nerves in the cord. It is well also to inject a little into the inguinal canal itself. This is done to get complete blocking. The needle is then pushed downward along the cord to the region of the globus major and a little more solution injected. The scrotum is then circum-injected, on the side to be operated on, all the way to the perineum. This injection is made where the scrotal skin merges with the skin of the thigh. Even though the operation be unilateral, Braun recommends anesthetizing the scrotal skin all the way around, the same as one would for a double operation. We have not found this necessary as we get complete anesthesia by injecting the one side. Finally, a little novocaine is injected into the skin along the line of incision. In order to get perfect anesthesia it is well to wait ten or fifteen minutes. With the anesthesia thus obtained any operation may be done on the scrotum or testicle without pain. We have found that patients having an epididymotomy done under this form of anesthesia are able to walk out after the operation in comparative comfort. Such patients report back to the clinic for dressings.

The above method is suitable for epididymotomies, resecting spermatoceles and hydroceles. It would work well for varicoceles, but we do not use it in the out-patient clinic because of the danger of local bleeding. A patient after a varicocele operation should remain in bed for a few days.



FIG. 5.—The line for injection in circumcision.

A modification of this form of anesthesia works excellently for circumcision. The method is much the same, a ring is infiltrated about the base of the penis close to the pubes. A little novocain is injected into the corpora cavernosa as well. This gives complete anesthesia of the whole penis, so that any operation, such as circumcision, cutting strictures of the anterior urethra, operations for phimosis and paraphimosis or even amputation of the penis can be done without pain. I find this method of especial advantage in doing circumcision, because in the old way of infiltrating the prepuce I was seldom able to get complete anesthesia and the infiltration rendered the parts worked upon very edematous, which was a great disadvantage.

For anesthetizing the urethra for cystoscopic work or cutting anterior strictures we have been using a 4% solution of alypin with very good results. We use as much as necessary to get complete anesthesia and have had no toxic symptoms from its use. It is injected into the urethra with an Ultzmann syringe and held in from five to ten minutes. For cutting anterior strictures some people use the alypin made up with a soluble lubricant, which is injected into the urethra with a urethral syringe. I can see no especial advantage to this method.

Braun recommends doing perineal section for prostatectomy and for external urethrotomies under local anesthesia, but most men in this country prefer ether or spinal anesthesia for such work.

Novocain is an excellent anesthetic for doing suprapubic cystotomies, especially in old people, to whom you prefer not to give ether. The method is very simple. With a ten c.c. syringe the skin, subcutaneous tissues, muscle and pre-vesical space are infiltrated with a 1% or 2% solution of novocain and suprarenin. After waiting the usual length of time for the anesthetic to take effect, an incision is made down to the bladder wall. It is well then to inject a little 2% novocain into the bladder wall itself. The bladder can then be opened and drained without pain, provided you do not make traction on the bladder wall or press upon it. Traction and pressure on the bladder wall cause pain, even after the use of novocaine.

The anesthetic of choice for prostatectomy, either suprapubic or perineal, especially in feeble old men is spinal. The solution of choice is tropeocaine.

Spinal anesthesia when properly given should produce satisfactory anesthesia for from three quarters of an hour to an hour and a half. In using spinal anesthesia for patients that are put into the lithotomy position care must be taken not to put them up into position for fifteen or twenty minutes, on account of the danger of producing too high an anesthesia.

The advantages of spinal anesthesia in these cases are many. First and foremost stand the lack of shock due to nerve blocking and the lack of ill effects on the kidneys.

The genito-urinary surgeon more than any other surgeon has to deal constantly with kidneys that are below par. An old man with long standing prostatic obstruction and constantly over-distended bladder has kidneys which have been weakened and their excreting powers lessened by the back pressure. The surgeon has to conserve the ability which such kidneys have left and must seek to improve it as soon as possible.

Ether does irritate the kidneys and spinal anesthesia does not. That in itself is reason enough for its use. In many of these cases it is of the utmost advantage to push water into them at the earliest possible moment to the limit in order to stimulate the kidneys to secrete prop-

erly. After ether it frequently happens that there is nausea and vomiting for several hours and fluid has to be introduced under the pectoral muscles or else let the patient go for several hours without enough fluid, thereby inviting the kidneys to shut down and produce uremia. Using spinal anesthesia, water can be started at once, even during the operation. There is no doubt that many poor risks are now saved by using spinal anesthesia who would have been lost by the use of ether.

The disadvantages of spinal anesthesia are its toxic elements and the fact that it is sometimes difficult to use in neurotic highstrung people. The toxic dangers have been pretty well eliminated by the perfection of the drug used. Highstrung patients are often helped by injections of morphine given some time before the operation.

I have not undertaken to describe the method of giving spinal anesthesia, as it should be done by a specialist and is not a part of the surgeon's work.

There are many more genito-urinary operations that can be done under local anesthesia, in fact most all such operations can, although in kidney work it is not very satisfactory except where it is necessary only to open a perinephric abscess or something of that sort in a patient who is too sick for ether.

In this paper I have attempted to show especially what can be done with local anesthesia in a genito-urinary out-patient clinic.

Medical Progress.

REPORT OF PROGRESS IN MENTAL DISEASES.

(Concluded from page 226.)

PART II.

BY HENRY R. STEDMAN, M.D., BROOKLINE, MASS.

NERVOUS AND MENTAL DISTURBANCES FOLLOWING CASTRATION IN WOMEN.

FROM an analysis of 112 cases Gordon¹¹ concludes that (1) Removal of the reproductive organs in women causes disturbances in the domain of the nervous system. These disturbances are of a purely functional nature. (2) The disturbances are somatic and psychic. (3) The psychic manifestations, while individually they belong to any of the varieties of psychoneuroses, nevertheless in their ensemble do not constitute any of the well-established classical forms of psychasthenia. (4) True insanities are not observed. (5) The generally observed symptoms are: restlessness with a tendency to move from place to place; difficulty of self-control; dissatis-

faction with all and everything; difficulty of finding contentment in one's own efforts; want of interest in all absorbing subjects and objects; indifference, indolence and pessimism. Sometimes there are outbreaks of anger with a tendency to attack. Among other symptoms may be mentioned: insomnia, gastro-intestinal disturbances of a functional nature, headache, vague pains or paresthesias, also occasionally glycosuria; tendency to obesity is also observed in some patients. (6) While the psychic manifestations are sometimes of a very disturbing nature, nevertheless they do not present the characteristics of genuine psychoses. For example, indifference and want of interest in surroundings lack the depth of those of melancholia or of dementia. Restlessness, which is so frequently observed here, lacks the characteristic features of exaltation in the motor sphere observed in cases of mania. As mentioned above, while individual symptoms of his cases resembled those of psychoses, the entire picture of each lacked the depth and definiteness of any of the forms of insanity. Some of his patients had to be removed from their surroundings and isolated, not because they were insane in the proper sense of the term, but because of inconveniences caused by them to others. Besides, the subsequent histories of the last category of patients as well as of any other patient of his entire series proved at no time the existence or eventual development of true psychoses. On the other hand, it is striking that the morbid phenomena persist with remarkable obstinacy; at times they become more accentuated, at others some improvement is noticeable, but then it is only temporary. Some of his patients have been under observation during a period of ten years and the condition still persists unaltered. (7) Individuals who presented various manifestations of psychoneuroses before they fell into the hands of surgeons, had their psychic phenomena decidedly aggravated after the uteri and ovaries or only the ovaries were removed. (8) As in the removed organs healthy portions of tissue were invariably found, it is to be supposed that the removal of the latter is in some relation to the morbid phenomena observed after the operations. (9) The logical conclusion seems to be that one must be very cautious in advising operative procedures on the generative organs and the tendency should be to preserve as much as possible of any amount of normal tissue found in the uterus or ovaries. (10) No operation should be advised on healthy organs if a woman complains of vague disturbances.

NERVOUS AND MENTAL AFFECTIONS IN THE FIELD.

Weygant¹² says that, contrary to the practice under other conditions, the aim should be to hurry the patient away at once, stupefy him with a narcotic if necessary, and also use force if unavoidable; even a strait-jacket may be needed.

The main thing is to get him out of the battlefield environment at the earliest possible moment, and the less he remembers of the journey the better. There is no special war psychosis, but war is very liable to fan into flame a latent predisposition to epilepsy, hysteria, slight imbecility and manic-depressive or catatonic attacks, or a syphilitic brain or spinal cord trouble. Prompt removal of those affected is important not only for their own welfare but even more on the account of the effect on other soldiers. A kind of "mass psychosis" is liable to develop in a time of panic, such as occurred at Kirkilisse and Lule Burgas in recent years. He cites figures showing that psychoses developed in 0.54 per thousand of the German troops during the Franco-Prussian war; in 2.7 per thousand of the United States troops in the Cuban war, in 2.6 per thousand in the British during the Boer war; and in 2 per thousand in the Russian troops during the war with Japan, while the records show only 0.33 per thousand among the Bulgarian troops and also in the Servian troops, and 0.097 per thousand among the Grecian troops. He ascribes the difference between the Russian and the Balkan figures to the liquor-drinking among the Russians. He does not offer any explanation, however, for the large numbers among the German expedition corps in Southwest Africa, 4.95 per thousand; including cases of epilepsy and hysteria, 8.28 per thousand of the troops were thus affected.

MENTAL DISORDERS AND PERNICIOUS ANEMIA.

Barrett¹³ has studied clinically the mental disorders of 11 cases of pernicious anemia, and in 9 of these a histologic study of the brain was made. The symptomatology of these cases showed considerable variety. Two were cases of epilepsy, 2 were not to be differentiated from dementia precox, 1 was a questionable manic-depressive psychosis, and 6 presented a characteristic picture of an asthenic state in which there developed a mental disorder of a paranoid type. It is to these paranoid conditions that this study is particularly devoted.

Brief accounts of 6 cases are given by Barrett. The first 2 of these showed a slight tendency toward delusional elaboration. In the remaining 4 the paranoid features were well developed. The cases, as a whole, have in common an irritability, and a suspiciousness which forms the ground on which develop the delusions of persecution. The content of the delusions is usually influenced by the somatic-neurologic symptoms and the situation in which the patient is placed as a result of these disturbances. In some instances there were auditory hallucinations to which the patient reacted with strong affect. In several cases there was confabulation, which suggested that seen in the Korsakow's syndrome. Comprehension and orientation were usually

clear, except for rare episodes, in which they were slightly disturbed. In two instances the mood was slightly expansive. In a number of instances the course showed remission in the intensity of the physical conditions. Underlying the development of the mental condition in all but one of these cases was a hereditary predisposition. In several instances there was a number of occurrences of mental abnormalities or insanity among the ancestors. In all cases of pernicious anemia with mental disorders studied, hereditary factors were found in the greater number.

The histologic changes in cord and brain as a whole are not of a specific type, but rather those which occur in conditions of chronic intoxication and resemble those found in chronic alcoholism, namely, the occurrence of increased lipid products in cells, glia overgrowth, vessel changes, miliary hemorrhages and intramedullary fibre degeneration. The similarity to a toxic type is further shown in the axonal type of reaction which was found in two instances, a change which has often been noticed in the Korsakow's symptom-complex and various forms of toxic neuritic disorders. As in toxic processes, the vessels are severely affected.

Clinically, Barrett points out there are features in these paranoid cases which resemble closely those seen in chronic and subacute toxic conditions, especially the chronic alcoholic delusional states. These are the occurrence of the suspiciousness and irritability, the development of the delusions of persecution, the auditory hallucinations and occasional memory impairment and confabulation.

INSOMNIA AND SUICIDE.

Under this title Pronger¹⁴ discusses the influence that slight refractive errors have in causing many of the functional nerve troubles, so prevalent in these days. Among these, insomnia has naturally had a prominent place. Slight errors of refraction, although not causing any visual defect, are of great importance in that they give rise to sundry neuroses. Especially, says Pronger, should these slight degrees never be ignored in any case of insomnia, because some error is nearly always present in those cases not associated with organic disease, such as tumor, kidney troubles, and the like, or with persistent pain from any cause. Insomnia is not usually the only symptom, but is generally associated with attacks of great depression, and often with giddiness or headaches. A few illustrations are given by Pronger of what can be done for the relief of insomnia, and also of some of the difficulties that have to be surmounted, particularly the skepticism of the patient as to the possibility of glasses being of use for such a purpose, especially if the sight is good or an oculist has already been seen.

THYROID EXTRACT IN CERTAIN MENTAL DISORDERS.

For many years Goodall¹⁵ has employed thyroid extract in cases of stupor and stupor with melancholia, or of confusional insanity—cases which have certain features in common with myxedematous cases, but until the last two years the failures were more numerous than the successes. He attributes many of those failures to the circumstance that he gave insufficient doses of thyroid. His recent experience entirely justifies those who have insisted on large doses if any benefit is to follow. Thyroid is not only beneficial in acute stupor, or acute dementia, and “confusional” states, but also at a later stage of these conditions and of cases of recent melancholia, when the patient has improved to a certain point and there remained. In these cases administration of thyroid has appeared to complete the process of recovery.

Eleven such patients were treated by this method. They were kept in bed during the whole course of treatment, usually in the open air, on liberal diet, and the temperature, pulse, and respiration were taken throughout twice daily. All had been mentally ill for months before the thyroid treatment was started. The amount of thyroid given varied from 25 to 50 grains a day for five to eight weeks. The pulse-rate was affected in the direction of increase very consistently, whereas the temperature and respiration were affected but slightly, or not at all. Gain of weight during the treatment occurred in two of eleven cases; one showed no change; in all the others a loss was noted, but after cessation of treatment weight was rapidly regained, and in eight instances there was ultimately a gain on the original weight. The results were highly satisfactory, since no less than six patients of eleven became well; and all the others except one, showed a definite improvement, and this one had been deranged for no less than three years when treatment was employed.

In eleven out of twelve cases of epileptic insanity treated with thyroid the number of fits was reduced. The patients were not on any other drug, but were kept in bed on ordinary diet, with in some cases, extras, such as milk and egg. A reduction of weight occurred in all except one. The observation as to the pulse, respiration, and temperature made in connection with the first series of cases apply also to this series. On the basis of these results Goodall kept certain of these patients on 5 grains of thyroid daily for a prolonged period; the patients were up as usual and on their usual diet. A substantial reduction in the number of fits occurred in many of these cases, amounting in some to from 52% to 65%, as a result of a small daily dose of thyroid. No ill-effects were observed.

Lemoine¹⁶ is quite encouraged with the results of thyroid treatment in the twelve cases in which he has given it a thorough trial. These patients were all between 17 and 24. The improvement

persisted for five years in one case, and then there was a return of the former condition. In the other cases the improvement has persisted to date, but the interval since has been shorter. In one case the interval is still too brief for estimation of the outcome.

HYOSCINE IN MENTAL DISORDERS.

Daniel¹⁷ summarizes the important points regarding the use of scopolamine hydrobromide as follows: (1) The continued administration of scopolamine hydrobromide may give rise to characteristic symptoms of chronic poisoning. (2) Weak-minded epileptics appear to have a marked idiosyncrasy for the drug. (3) Careful watch should be kept on all patients taking hyoscine regularly, and undoubtedly the best test for any ill effects is the weighing machine. (4) For acute excitement there is no drug so reliable as hyoscine when given hypodermically, but the doses must not be repeated indefinitely. (5) Lastly, there is no doubt that life may be endangered by hyoscinism.

THE WET PACK IN THE TREATMENT OF INSOMNIA AND MENTAL DISORDERS.

Raynor¹⁸ regards the following classes of cases as the most favorable for its therapeutic employment in asylums: (1) In acute delirious mania, of sthenic type, with continued insomnia. It constantly succeeds in producing sleep when narcotics have failed utterly; also, in mania of sthenic and active type. (2) In insomnia accompanying mental disorder, with associated toxic conditions, whether of melancholic or of maniacal type. Climacteric and gouty conditions, alcoholic and drug habit cases are specially benefited. He shows that its first effect is the production of a cold state, with shivering and a falling temperature. This is followed quickly by the stage of reaction, in which the temperature rises and there is profuse sweating due to dilatation of the cutaneous vessels, with subsequent sleep. There is probably considerable elimination of toxins in the sweat. He lays stress on the point that as soon as the temperature reaches the normal the coverings should be diminished, as it is not desirable that pyrexia should be produced, and he adds other practical points to be observed. This mode of treatment, which is certainly of great service in the treatment of some forms of mental disorder, of insomnia, and of many bodily disorders which are found in the insane as well as in the sane, he regards as especially advantageous for institutions for the insane. He adds that the vanished employment of wet packing in asylums [in England] is almost certainly due to its being classed as a form of restraint. The regulation of 1872 enforcing the record of wet packing was certainly not intended to produce this result, but only to check its abuse as a method of veiled mechanical re-

straint. The lunacy commission, he remarks, has been always most punctilious in avoiding any interference with legitimate therapeutical methods, yet the use of the dry and wet pack is still considered as a method of restraint in their revised regulations of 1913. These regulations demand still further consideration and it may be hoped that, whilst preventing the abuse of wet packing, they may be so framed as to encourage its employment as one of the most important and valuable means of treatment of the insane.

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Book Reviews.

Case Histories in Obstetrics. Groups of Cases Illustrating the Fundamental Problems Which Arise in Obstetrics. By ROBERT L. DE-NORMANDIE, A.B., M.D.; Assistant in Obstetrics, Harvard Medical School; Physician to Out-Patients, Boston Lying-in Hospital; Assistant in Gynecology, Boston Dispensary.

This, on the whole, very excellent volume is a good example of both the advantages and the disadvantages of the case history system of constructing a text-book or book of reference. The cases are given in great detail, and their detailed recital covers not merely the feature in the case which it is especially intended to illustrate, but the case as a whole in all its features. Each case thus assumes a strong verisimilitude to actual experience and carries many lessons beside that which is its especial function in the book. To one who knows the persistence with which incidental lessons often linger in the memory, this is a very valuable characteristic. The book reflects throughout the author's wide experience in direct personal contact with students. The simple lucid style and the wealth of practical detail should make it of great value, not only to the advanced student or inexperienced practitioner, but to all the many physicians who have been obliged to pick up their practical obstetrics after receiving nothing but the routine school training. Such men are usually for many years in a position to profit highly by such practical hints as those with which this book abounds. It is well arranged, the table of contents is excellent, the summaries of each subject are clear and practical, and though the index does not appear very full it should be easy of use as a work of reference when its possessor desires to look up a single subject, but considered as a work of

reference it has the defects of its qualities. The method adopted necessarily makes the discussion of each subject discursive and complicated with irrelevant matter. With sufficient time to read and absorb the subject under review, as given in the cases and summary, the inexperienced practitioner will probably get a better knowledge of the points involved than from the briefer descriptions given in the routine text-books, but he will not get it so quickly nor can he expect to find all he wants at any one spot. The book as a whole furnishes an interesting and surprisingly practical picture of how a careful and thoroughly modern obstetrician conducts his work in all or most of its phases.

Local and Regional Anesthesia. With Chapters on Spinal, Epidural, Paravertebral, and Parasacral Analgesia, and on Other Applications of Local and Regional Anesthesia to the Surgery of the Eye, Ear, Nose and Throat, and to Dental Practice. By CARROLL W. ALLEN, M.D., Instructor in Clinical Surgery at the Tulane University of Louisiana, New Orleans; Lecturer and Instructor in Genito-Urinary and Rectal Diseases at the New Orleans Polyclinic; Visiting Surgeon to the Charity Hospital. With an Introduction by RUDOLPH MATAS, M.D., Professor of General and Clinical Surgery at the Tulane University of Louisiana, New Orleans, etc. Illustrated. Philadelphia and London: W. B. Saunders Company. 1914.

This is a well-printed book of 600 pages covering every portion of the field of local anesthesia. Under this head, as is apparent from the title, Dr. Allen includes chapters on spinal and sacral anesthesia.

This is the book of an enthusiast, who has made much practical use of the methods he describes, and has covered the literature upon the subject in a most extraordinary manner. It is unfortunate indeed that this extensive bibliography is eliminated from the book, even for the excellent reason of avoiding undue bulk. The author has been successively a student, assistant and associate of that brilliant, untiring and original surgeon, Matas, of New Orleans, who nearly two decades ago planned and actually began a book on this subject. It will be somewhat of a surprise to a good many young surgeons to discover that Matas was one of the greatest and earliest investigators of local anesthesia in this country. His name has usually been associated with entirely different branches of surgery. His introduction is interesting and contains a brief summary of the various and unusual procedures which he carried out in those early years. Dr. Allen most enthusiastically credits his teacher with not a few of the great advances made in the early days of local anesthesia.

The Myth of the Birth of the Hero. By DR. OTTO RANK. Authorized translation by DR. T. ROBBINS, AND DR. SMITH ELY JELLIFFE. *Nervous and Mental Disease Monographs*, No. 18. New York: Nervous and Mental Disease Publishing Company. 1914.

This latest addition to the excellent series of monographs on nervous and mental diseases is a translation of a monograph by one of the followers of Freud, applying his view of the domination of the sexual instinct in infantile psychology, to the development of the myths of various nations. Though unconvincing because of the typical Freudian overuse of symbolism to force everything in the myths into a preconceived idea of the rôle of certain elements in psychological factors, the book is interesting, and the translation reads smoothly.

Psychopathology of Everyday Life. By PROF. SIGMUND FREUD, LL.D. Authorized translation by A. A. Brill. New York: The MacMillan Company. 1914.

The psychologic theories of Freud are extremely interesting to physicians who have to deal with the neuroses, mental diseases, or psychology, though many able men are unable to accept parts of his theories, notably the concept of a psychologic censor, and the all-controlling influence of the sexual instinct in psychology to the exclusion of other instincts, and psychologic states. The extension of these theories to the psychology of everyday life is still more questionable than their application to neurotic symptoms and mental states, but is praiseworthy as showing a widening field of inquiry in physicians who are concerned in the study of the neuroses. In spite of these reservations which the reviewer feels he must make for the guidance of his readers, this book throws much light upon many of the phenomena of everyday mental actions of the normal, as well as of the pathologic mind, and shows exceedingly well how the mental processes of pathologic mental states follow the lines of normal psychologic processes. The translation seems well done, and for the most part reads smoothly.

The Unconscious. *The Fundamentals of Human Personality, Normal and Abnormal.* By MORTON PRINCE, M.D., LL.D. Professor (emeritus) of Diseases of the Nervous System, Tufts College Medical School; Consulting Physician to the Boston City Hospital. New York: The MacMillan Company. 1914.

Dr. Prince has long been known for his numerous and careful studies of abnormal psychology, and this book consists mostly of selected lectures from courses on that subject delivered at

the Tufts College Medical School and at the University of California in 1910, though these have had incorporated in them a large amount of new material, and the subject has been treated more in detail than was practical before students. The book is clearly written, and anyone, even without any special knowledge of psychology or abnormal psychology, should have no difficulty in following the writer in the development of his ideas.

The first lectures take up the theory of memory, and certain of the phenomena connected with it, with illustrations drawn from both the normal and the abnormal. A lecture on neurograms then pleads for a physical basis in the brain as a foundation for memory. The various phenomena of the unconscious and of subconsciousness are then very clearly set forth. The remaining lectures develop the writer's views of the relation of unconscious ideas to the emotions, instincts, sentiments and conflicts, and the origin through these of the abnormal psychologic phenomena which we classify as the various forms of functional nervous disease.

Whether one is ready to accept in full the conclusions of the author as to the origin of these abnormal psychologic states will depend largely upon the reader's knowledge of these states, and of psychologic phenomena, influenced no doubt by the theories held; but no student of these important and exceedingly complicated phenomena can fail to profit from the reading of this book, and rise from it with a clearer idea of the problems to be solved in this field. Those who are not special students of this subject also cannot fail to gain something from its perusal and to be more able to estimate at their true value the articles so often published in popular magazines on certain aspects of these phenomena.

It may not be amiss to call attention to a couple of misprints, the first in the second footnote on page 426, where Dr. Cannon's article should have been credited to the *American Journal of the Medical Sciences*, and another in the last line of the text on page 443, where "cardiac and respiratory disease" should evidently read "distress."

The Clinics of John B. Murphy, M.D. At Mercy Hospital, Chicago. December, 1914. Published bi-monthly. Philadelphia and London: W. B. Saunders Company.

This number contains, besides an index to Volume III, a description of a series of interesting surgical cases; a paper by Dr. C. L. Mix on Hodgkin's Disease; Fracture-Dislocation of the Spine at the Level of the Twelfth Dorsal Vertebra; Appendicitis; Cholecystitis; Sarcoma of Tibia; Arthroplasty for Bony Ankylosis of the Wrists; Tuberculous Epididymitis; Perforating Duodenal Ulcer; Retroperitoneal Sarcoma. This December number does not seem quite up to the previous general average.

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THE BLOOD-PRESSURE DURING PREGNANCY.

In the *Journal of the American Medical Association* for January 30 is published the notable contribution to this subject presented by Dr. Franklin S. Newell at the fifth annual meeting of the American Association for the Study and Prevention of Infant Mortality held here in November, which is based on observations on 450 cases from the records of the committee in charge of the pregnancy work carried on by the Women's Municipal League of Boston. He concludes, very properly, that the significance of the rise in blood-pressure noted in a considerable number of women during gestation can be ascertained only by a frequent study of the blood-pressure in a large number of cases, and, in order that definite knowledge on this whole subject may be attained, it is certainly highly desirable that such studies on a large scale should be made. In this series of cases 421 of the 450 patients showed a blood-pressure which at no time was either below 90 or above 130;

in other words, these 421 patients showed what can be properly classed as absolutely normal pressure. Of the 421, 78 at some time during the pregnancy showed a pressure slightly below the normal, ranging somewhere about 90 and 100. In none of these patients, however, was the low blood-pressure persistent, it being observed only on one or two examinations, and in no instance did any uncomfortable symptoms afterward develop in labor which were referable to the low pressure; indicating, therefore, that a temporary low blood-pressure is of no significance during pregnancy. If the pressure remains persistently under 100 it is regarded as fair to assume that the patient's general condition is below par, and steps should be taken to improve it. If the pressure is over 130 the patient should be kept under close observation, even in the absence of other symptoms, and a rising pressure should always receive the most careful attention, as possibly being the initial symptom of an impending toxemia. In the 450 cases the examination of the urine showed albumin persistently or temporarily present in fifty patients. Of these, eleven showed also a blood-pressure of over 130, and every case of toxemia in the series, with the exception of one in which post-partum eclampsia developed in spite of a normal pressure, every case of toxemia occurred among these patients.

Among the conclusions of Newell are the following: In certain cases a rise in blood-pressure was followed by the appearance of albumin in the urine, a combination which has been shown to be a definite indication of the development of toxemia. In only one instance, however, did convulsions occur, the other cases yielding to treatment. Thirty-nine cases showed traces of albumin in the urine, but no change in the blood-pressure. As the urine was not obtained by catheter, the source of the albumin is unknown, but in the majority of the cases it was probably due to contamination of the urine by leucorrheal discharge. To judge from these cases, the presence of a slight amount of albumin, if not accompanied by a rise in blood-pressure, is negligible. All the eleven cases, however, which showed albuminuria with a high blood-pressure were presumably more or less toxemic. Five patients showed a pressure of 140, or over, throughout the period during which they were under observation, but only one of these developed albuminuria at any time during the pregnancy; which would tend to prove that persist-

ent high blood-pressure, in the absence of other signs, is not necessarily a dangerous symptom. Still, it should always arouse suspicion and call for increased watchfulness, whereas, as was shown in other cases in the series, a rise in blood-pressure from a low point is not infrequently followed by the appearance of albumin and the development of symptoms of toxemia, and is more significant than a high pressure throughout. A pressure of 150 has been commonly regarded as the danger line, but a persistent rise of the pressure from a low point, even though it may never reach this arbitrary danger point, calls for most careful attention.

Of great interest in connection with this report is the experience of Dr. D. J. Evans of Montreal, as recorded in a paper on "High Blood-Pressure in the Toxemias of Pregnancy," read before the American Therapeutic Society at its annual meeting in 1912. Evans's material consisted of thirty-eight cases of actual toxemia in which pregnancy was complicated with eclampsia, albuminuria and vomiting of a toxic type, and in twelve of the series the condition was so severe as to call for the induction of premature labor. In eight cases eclamptic convulsions occurred, and among these the highest blood-pressure was 200 and the lowest 140. In most of the cases the pressure was from 170 to 190 immediately before the convulsions. One of the patients had three convulsions, though her blood-pressure did not rise above 150 except at the actual time of a convulsion. Of two patients whose pressure was 200, one had five convulsions, and the other eighteen. There were four cases of severe vomiting; two early in the pregnancy and two near term. In the latter the blood-pressure was 140 in one, and 125 in the other, and in both instances labor was natural. Of the former, one patient, whose blood-pressure was never above 125, recovered from her vomiting and went to term; while in the other case abortion occurred at the sixteenth week and the patient died ten days later. This case was of special interest, as the patient's blood-pressure, usually about 100, never rose above 110; yet she developed retinal hemorrhage, in addition to other signs of grave toxemia. Of the remaining 26 cases, all had albuminuria with toxic symptoms of more or less marked severity. Seven had a blood-pressure of 160, or over; two of them as high as 180. In twelve the pressure was 140, or under, the lowest record being 120.

As a result of his experience Evans reaches

the conclusion that the blood-pressure record is of little value as indicating the degree of toxemia present in cases of severe vomiting, and that further observation would demonstrate that in this class of cases the pressure falls below normal. He has been surprised at the comparatively low reading found in many instances where the symptoms indicated the existence of a very considerable degree of toxemia. In three of his series the induction of labor was imperative although the blood-pressure was 150, or under, while in four cases with a pressure exceeding 150 the toxic symptoms were so slight that the patients were permitted to go to term; when their labors were entirely normal. He is inclined to consider the danger limit as 160, and advises that in cases where, in spite of treatment, the toxic symptoms do not yield and the blood-pressure is maintained at or above this figure, pregnancy should be interrupted. In cases of pregnancy with high blood-pressure without toxic symptoms, a number of which he has met with, he believes there is little occasion for anxiety; but in all cases with renal or hepatic insufficiency the blood-pressure should be carefully watched. A rising pressure, associated with other toxic symptoms, in these cases is indicative of danger. As was suggested in the beginning, there is unquestionably need of further and more extended observation and study regarding the significance of the various phases of the blood-pressure in pregnancy. Thus, in the two series of cases cited, the blood-pressure referred to is presumably the diastolic pressure, and no mention is made of the systolic pressure, which in other conditions has of late assumed a position of very considerable importance.

EUGENIC LEGISLATION.

IN spite of all the optimism of the eugenists it is obvious that, much as it might be desired on scientific grounds, the methods of the stock-farm are inapplicable to human beings. And besides, the study of heredity has convinced almost beyond a doubt that disease tendencies, particularly defects, are transmitted from and by ancestor to progeny; and that it is of far more importance to prevent transmission by this method than to attempt to build up synthet-

ically from "perfect" individuals finer and more ideal products.

The existence of veritable colonies of defectives in many States has persuaded quite a number of the legislative bodies to enact statutes permitting the sterilization under certain conditions and safeguards of the mentally and morally defective populations of public institutions, in the hope that in this way will propagation by these "species" be anticipated, and their line become extinct. The legality of this procedure has, naturally, been attacked—in the defective that it is an interference with the absolute right of person, and in the criminal that it is "cruel and inhuman punishment," and against the constitutional restriction in the eighth amendment. The legal phases of this question are many, and are open, and must be finally decided before this practice can have universal application.

It is not merely jurists or laymen who are opposed to sterilization. Many very prominent scientists have expressed opposition to this practice on the ground that it is unscientific. On the Mendelian elaboration an individual himself defective, when born from the union of a defective and a normal, may yet produce normal offspring, because the dominant determiners in him alone are active, while the recessive or defective ones are dormant or inactive. This is illustrated in hemophilia, where the recessive characteristic causative of the bleeding diathesis is rendered active only when transmitted through a female to her male offspring; and where the bleeder leaves no potent female this constitution is forever inactive, and is finally wiped out because of inactivity. To sterilize the bleeder would be to destroy normal males, as well as the offending females. Reversely, one of two normal mates may have within himself an ancestral recessive defect, dormant in him for the time, but which the union under certain conditions renders active in an offspring. This may give explanation to the presence of a defective in a normal or even otherwise highly developed family.

The opponents of sterilization contend that until something more definite is learned of the method of hereditary transmission, sterilization as a public welfare procedure is not justified. Sterilization can logically only, if at all, be carried out with the distinct mental reservation that there is to be a sacrificing of the lives-to-be of normals in this endeavor to anticipate the inception of defective lives-to-be. And the ques-

tion naturally arises: do these future normal lives-to-be have present value enough for so radical a remedy?

A form of eugenics, negative also, to be sure, that is intended to affect the public in general, is that purposed through legislation requiring all who contemplate marriage to submit certificates of good health as conditions precedent to the issuance of marriage license. The determination and the responsibility for this momentous and often difficult question is thrown entirely on the shoulders of the physician, whether in his private or whether in his public capacity. In effect it is calling upon him to pass on the most organic question in society. His certificates of health will be policies of insurance of immensely greater significance than money risk insurance certificates. They will insure not only against the existence of present patent or present but latent diseases or defects in the contracting parties, but also against subsequent ones arising thereafter, because it will be difficult to determine a causation prior or subsequent to marriage. And yet in so far as venereal diseases are concerned—against which the largest element of this propaganda is aimed—this determination is comparatively simple, only in the very rare instances when the applicants would present themselves for examination during the acute or sub-acute stages. But how many latent gonorrheas escape detection even after the most painstaking examination and even in individuals who will not marry unless declared free from disease? Even recently active syphilis can be made to escape detection by the Wassermann reaction after a period of anti-syphilitic treatment, beside many instances in which the reaction is negative in clinically positive cases not under treatment. Incipient cases of tuberculosis often defy detection, even with the most advanced diagnostic measures, only to bloom out shortly thereafter. Positive cases of insanity will escape the examiner if examined during a lucid interval, or in active cases where the delusions and the like manifestations are studiously concealed. In epilepsy a sufficiently positive diagnosis can never be made between attacks except where the physical and mental deterioration is marked from very profound or very frequent attacks.

Even on the most liberal and on the very broadest construction, how can such a restriction to marriage affect individuals who are themselves admittedly fit, but who present definite taints in their immediate or remote ancestors, and who are

theoretically just as potent to transmit defect as if they themselves were affected? Legislation forbidding them marriage would fail utterly of enforcement because so extreme and because impracticable.

Before such legislation is unreservedly endorsed, physicians must consider that in every case where disease or defect would manifest themselves after marriage, either in the contracting parties or in their offspring, the examining physician would be held under the gravest suspicion—and the integrity and competence of the whole profession might fall into disrepute.

HOSPITAL QUIET ZONES.

At the instance of the Women's Municipal League of Boston an ordinance for the establishment of quiet zones in the vicinity of hospitals was recently drawn up by the Boston Street Commissioners and submitted for approval to the Mayor. The text of the proposed ordinance was as follows:—

"Section 1. The Commissioner of Public Works is hereby authorized and required to conspicuously place and maintain at corners of intersecting streets, avenues, and places on which may be located a hospital or other institution for the care of the sick, a sign or signs displaying the words, 'Hospital Street; Unnecessary Noises Prohibited.'

"Sect. 2. On any street designated as a 'hospital street,' on which such a warning sign as described in the preceding section has been erected, or within one hundred yards of any hospital or other institution for the care of the sick, no person shall make unnecessary or unseemly noises, including the crying out of his wares by a vender or peddler; loud or boisterous speech or conversation by individuals or groups of individuals; the sounding or playing of musical instruments and the sounding of an automobile whistle or horn, other than a reed horn; and no driver of a horse-drawn vehicle shall drive his horse or horses at a speed faster than a walk.

"Sect. 3. Any person guilty of violating the provisions of this ordinance shall be fined not more than \$20 for each offence.

"Sect. 4. This ordinance shall take effect sixty days after its passage."

At a hearing recently held before the commissioners in behalf of this ordinance many causes of disturbance to the sick in hospitals were enumerated by hospital administrators and

other officers. The report of the commissioners to the Mayor regarding the ordinance comments as follows on these complaints and on possible methods of obviating them:—

"The noise of heavy teams rattling through hospital streets is the only one of these things complained of that the board could control. It could do this by making a rule that such teams should be kept out of hospital streets. To this, however, objection was made by team owners and shippers, and not without cause. To give this relief to some hospitals, teaming would have to be diverted from main thoroughfares, and this the transportation interests protest against. The board is of the opinion that so little relief can be given by diverting traffic, it is not worth while to attempt anything in this direction.

"Next to the noise made by heavy teams, that made by the excessive use of the automobile horn or whistle is the worst and the most complained of. It is difficult to say whether it is the statute that is at fault or whether it is the fault of the drivers of motor vehicles, who may be careless as to the use of the horn or indifferent to their surroundings. The automobile statute, it is true, requires operators of motor vehicles to sound a warning at intersections of streets, and they may be punished for not doing so. The same statute, however, undertakes to prohibit the excessive use of the warning signal. There have been many prosecutions for failure to sound the signal, while prosecutions for too much sounding of signals have been rare.

"It would seem that the requirements of the statute would be met if the operator confined his efforts in signalling while near a hospital to the reed horn, which is not so objectionable as some of the other horns in use. To meet this complaint the board has incorporated in the proposed ordinance a provision that only the reed horn shall be used by automobile operators in the vicinity of hospitals.

"In addition to the adoption of some such ordinance as the one proposed, great relief would be given to hospitals if the surrounding streets were paved with some noiseless material. Your Honor has already suggested that this be done. The board heartily concurs with you in this suggestion. With such pavement, and with the requirement that drivers of horse-drawn vehicles shall not drive their horses at a speed faster than a walk in front of hospitals, the sick in these institutions will get as much relief from disturbances in the highways as it is possible to give them.

"It is an unfortunate circumstance that so many of the largest hospitals are located in the busiest of the city's thoroughfares. The board believes, as do most of the good people who give so much of their time and effort to the relief of the sick, in public and private hospitals, that the mere placing of signs calling attention to the fact that the street is a 'hospital street' will

have powerful influence in reducing the noises complained of."

In view of this report and the representations of many persons interested in the passage of this project, it appears that although the original scheme for the establishment of quiet zones about hospitals must be considerably modified, some definite relief from present conditions may be hoped and expected from the provisions of the proposed bill.

THE LOCAL PUBLIC HEALTH OF SUMMER RESORTS.

IN another column of this issue of the JOURNAL we republish the report of a committee on village improvement appointed to deal with the conditions of local public health at a well known New England summer resort. This report illustrates admirably how this community met its responsibilities, so far as health is concerned.

The first outstanding feature of the report is the notable prevalence of typhoid fever, not only at York but at other similar resorts. The extent of this prevalence is not generally realized and it is desirable that recreation seekers should be intelligently instructed about so-called "vacation typhoid" or what used to be known as autumnal fever. This can be done only by freely publishing the truth concerning typhoid as of all other contagious diseases, a policy which, whenever pursued, has always been shown to be followed by good results.

The town of York is one of not a few summer resorts which has met its local problems of public health in a model manner; but there remain many others which could wisely and profitably take example by its lesson. The two essentials of the method by which this excellent result was accomplished were, first, the replacement of the old-fashioned, inadequate and clumsy board of health by a full time health officer; second, the voting of an adequate appropriation thoroughly to carry out the needed reform. Although in this instance the annual appropriation amounted to only \$1.00 per capita, that sum, as a matter of fact, is proportionally greater than that which any other American city spends directly for public health. Similar methods and a proportionate appropriation in every American city and town might well be ex-

pected to accomplish equally creditable results. No community, whether that of a health resort or of an agricultural or industrial center, can longer afford to depend upon nature and luck for a clean bill of health, but must rely rather on the intelligence and efficiency of its local public health officers.

MEDICAL NOTES

ENDOWMENT FUND FOR MEDICAL RESEARCH.—Report from Minneapolis on February 9, states that the Drs. Mayo of Rochester, Minn., have decided to establish a \$1,000,000 foundation for medical research, to be placed under certain restrictions in the hands of a board of regents in the University of Minnesota. It is planned that the interest of this fund shall be used annually for research by graduate medical students of the University. At a meeting of the faculty of the University of Minnesota Medical School on February 8, this project was approved and has been referred to the advisory board.

UNITED STATES DEATH RATE IN 1913.—A report issued by the United States Census Bureau on February 8, shows that in 1913 the death rate of the United States was 14.1 per thousand of the estimated population in the registration area, as compared with 13.9 per thousand in 1912. The total number of deaths in the registration area, which contains about two-thirds of the national population was 890,948.

"Washington State showed the lowest rate, being 8.5 per 1000, while New Hampshire's was the highest with 17.1 per 1000. The rate in Massachusetts was 15. The lowest rate shown in 1913 by any of the fifty registration cities with populations of 100,000 or over in 1910, was that of Seattle, which was 8.4, while Memphis showed the highest with 20.8. Boston's rate was 16.4; Cambridge, 13.5; Fall River 17.2; Lowell, 15.9; Worcester, 15.8. The average age at death for both sexes, from all causes combined was 39.8; for males alone 39.2, for females, 40.6. Nearly 18 per cent. of all deaths were of infants under one year of age, and more than 25 per cent. were of children under five years.

"The death rate from tuberculosis declined from 149.5 per 100,000 population in 1912, to 147.6 in 1913. The rate from cancer rose from 63 per 100,000 in 1900 to 78.9 in 1913. The number of suicides was 9998, the rate being 15.8 per 100,000, compared with 16 in 1912."

TUBERCULOSIS AMONG WORKINGMEN.—A new campaign for closer co-operation with labor unions and other groups of workingmen is announced by The National Association for the Study and Prevention of Tuberculosis.

A committee has been appointed with Dr. Theodore B. Sachs, President of the Chicago Tuberculosis Institute, as chairman, to formulate plans for immediate and future action. Other members of the committee are: Dr. William Charles White, Medical Director of the Tuberculosis League of Pittsburgh, and Dr. David R. Lyman, Superintendent of the Gaylord Farm Sanatorium, Wallingford, Conn.

As the first step in the campaign, a special health bulletin has been prepared for the labor papers, and will be sent out monthly in coöperation with members of the International Labor Press Association. A second step in the plan is an investigation into the various special experiments of co-operation between workmen and the anti-tuberculosis movement that have been carried on in this country. Such work as that of the tuberculosis relief associations in Hartford, New Haven, Meriden, and other Connecticut cities; the Trades Union Sections of the Buffalo and Newark Anti-Tuberculosis Associations; the work of the Factory Committee of the Chicago Tuberculosis Institute; the Tuberculosis Pavilion of the Albany Federation of Labor; the "Overlook Plan" of Massachusetts; and other similar efforts are being studied and reported upon. These reports will be made the basis for recommendations and further study in industrial communities throughout the country.

NEW YORK CITY'S DEATH RATE CONTINUES LOW.—The mortality noted during the past week was remarkable for the low rate recorded. There were 1,460 deaths reported as against 1,628 deaths during the corresponding week in 1914, a decrease in the absolute figures of 168 deaths, and if the increase in population be taken into consideration, a relative decrease of 236 deaths.

Every prominent cause of death showed a decreased mortality, especially measles, diphtheria and croup, scarlet fever, whooping cough, typhoid fever, diarrheal diseases under five years of age, organic heart diseases, acute diseases of the respiratory organs, influenza, tuberculosis of all organs, Bright's disease and nephritis, and violence.

The greatest decrease in mortality was shown in the number of deaths reported from organic heart diseases, the pneumonias, and the deaths from accident. At all age groups, with the exception of infants under one year of age, the mortality was lower than in the corresponding week of 1914.

The death rate for the first five weeks of this year was 14.08 per 1000 of the population as against a rate for the corresponding period of 14.75, a decrease of .67 of a point.

EUGENICS AND MARRIAGE IN WISCONSIN.—Report from Madison, Wis., on February 6, states that during the year 1914, the first year of the operation of the new eugenics marriage law, only 13,300 marriages were recorded in that state as against 17,332 during 1913. If the quality of

these marriages is demonstrated to have been improved, the eugenic law may be considered to have fulfilled its object.

CASE OF LEPROSY IN CHICAGO.—Report from Chicago states that a case of leprosy was discovered in that city on February 5 in the person of a recent Italian immigrant working as a night watchman. The patient has been deported.

EPIZOÖTIC OF FOOT AND MOUTH DISEASE.—On February 5 a dozen new cases of foot and mouth disease were discovered in the local stockyards at Cincinnati, Ohio, which were thereupon quarantined. These cattle had been shipped from Indianapolis. As a result of this discovery and of other recrudescence of infection in Chicago, Louisville, Buffalo, Pittsburgh and Jersey City, a new quarantine order was issued on February 6 by the department of agriculture modifying the quarantine regulations in these regions. On the same day the Bureau of Animal Industry announced that the total loss from the present epizootic amounts to \$3,399,110.

Twenty states and the District of Columbia have been more or less affected since last October. By January 31 the work of checking the disease was practically completed in all but seven states and further progress is continually being made. There have been slaughtered 46,268 cattle, 47,735 swine, 7,151 sheep and 22 goats.

The cost of the epizootic in other states has been: Illinois, \$1,338,854.18; Pennsylvania, \$750,000; New York, \$293,224; Rhode Island, \$47,084.50; Connecticut, \$35,787.10.

In Massachusetts the cost thus far has been \$72,425, and an appropriation of \$100,000 has been asked of the General Court to meet this and further liabilities. Statistics show that in Massachusetts the disease has appeared in 32 towns and 794 herds. The total appraisal of animals was \$119,050 and of property destroyed \$25,000, of both of which the State pays one-half and the federal government one-half. Several new cases of the disease were discovered on February 8 at Waltham, Mass., and on February 9 at Arlington, Mass. In both places quarantine has been reestablished.

EUROPEAN WAR NOTES.—Report from Vienna on February 4 by way of Amsterdam and London states that small-pox is at present epidemic in the Austrian capital but the number of cases is not stated.

In an address before the Surgical Society of Paris on February 6, Dr. Truffier is reported to have said that of the 14,000 surgeons in the French Army, 6,500 are now at the front. Up to the close of December 93 surgeons had been killed, 260 wounded, 440 were missing and 155 had been mentioned in orders for gallantry on the field of battle.

The Constantinople Chapter of the American Red Cross, after a recent conference with Dr.

Suleman Nouman, inspector general of the Turkish Military Sanitary Service, has sent to the Ottoman war department a list of American Missionary Hospitals in Asia Minor, having a total of approximately 1000 available beds. It is intended that these hospitals shall be used in meeting war emergencies in caring for the wounded of all nations.

Of the 15 institutions listed, two are the French and British hospitals in Constantinople, now under the American Red Cross. On the others, 10 are hospitals connected with mission stations of the American Board while one conducted under an independent board of trustees is officered by men formerly connected with the American Board.

The Turkish Ministry of War has been asked to furnish certain supplies—drugs, absorbent cotton, oil, coal, etc.—for the British and French hospitals in Constantinople, but nothing is said about the furnishings for the hospitals in the interior.

Prior to the outbreak of the war the total number of physicians in Europe was approximately 200,000, of whom there were 48,000 in Great Britain, 32,000 in France, 26,000 in Germany, 24,000 in Italy, 20,000 in Russia, 13,000 in Austria, 12,000 in Belgium and 8,000 in Spain. The proportion of physicians to population is much greater in Great Britain than in any other country, but it is highest of all cities in Brussels, where there is one to every 400 inhabitants.

Three more American surgeons have recently left this country for field service in Europe. Dr. Earl B. Downer of Lansing, Mich., will go to the first American Red Cross hospital unit at Belgrade; Dr. James E. Stowers of Kansas City, and Dr. E. L. Gilchrist of Gainsville, Texas, to the American Red Cross hospital at Paignton, England.

Report from Vienna by way of Washington, D. C., on February 8 states that the Red Cross badge of honor of the second class has been conferred upon Drs. MacDonald, Jewett and Miller of the American Red Cross hospital at Budapest. Report from Vienna by way of London on February 9 states that Surgeon General Philip Peck, chief of the Austrian Army Medical Corps, has died of typhus fever contracted during an inspection trip to the camps of the Russian prisoners in Austria.

A recent correspondent of the *British Medical Journal* who has been in charge of an ambulance in France, has investigated some of the psychological consequences of experience on the battlefield and in the trenches. "Neurotic subjects, as one would expect," he says, "react in a most striking fashion to the shock of explosions in their immediate vicinity. Some develop a tendency to somnambulism and are met wandering about the premises with terror and anxiety depicted on their faces in anxious search of their regiments. Short of somnambulism the dread of losing contact with their fellows seems to be felt with extreme frequency, and horror of isolation con-

stitutes the commonest nightmare of men in the first fighting line. They dream that they are wandering through endless trenches as complicated as an artificial maze, or are picking their way through lonesome forests whence all but they have fled. The slightest noise during sleep calls up visions of exploding shells or the tramp of armed men, throwing them into a frenzy of shouting terror, to the indignation of their resting fellows. Oddly enough, these men are as brave as the rest in face of real danger. Another common night terror is the dream of a sudden call to arms and the inability to find some indispensable article of attire or combat, a conception productive of intense mental agony. Live shells naturally occupy a large share of subconscious attention, and an exasperating nightmare is the discovery in one's bed of a shell ready and willing to burst, associated with the usual nightmare incapacity to execute the necessary movements to get rid of it. Several men have had dreams centering round the inability to withdraw the bayonet from the enemy's body when urgently required for self-defence. Numerous instances of "traumatic hysteria" are met with in which men suddenly roused from deep sleep by explosions, develop the characteristic paralyses and disturbances of sensation. In one case there was marked limitation of the field of vision and inability to connect letters into words; the man could read the letters, but could not pronounce the word when spelled nor write the word when pronounced. Insomnia and more or less troublesome restlessness are also common consequences of the strain on the nervous system of actual warfare."

On February 12 the total of the New York Belgian Relief Fund amounted to \$918,016.98; the New York Red Cross Fund to \$457,583.86; the American Jewish Relief Fund to \$458,792.05; the American Ambulance Hospital Fund to \$325,929.86; and the Committee of Mercy Fund to \$117,904.42.

On February 13 the total of the New England Belgian Relief Fund amounted to \$197,573.77; Massachusetts Red Cross Fund to \$109,723.12; and the American Polish Relief Fund to \$20,582.77.

BOSTON AND NEW ENGLAND.

DEDICATION OF THE CHAPIN MEMORIAL BUILDING.—On Thursday of last week, February 11, the new Frederick Wilcox Chapin Memorial Building of the Springfield (Mass.) Hospital was formally dedicated with appropriate exercises. A eulogy of Dr. Chapin was pronounced by Dr. Charles P. Hooker. The building was presented by Mr. George D. Pratt and accepted in behalf of the trustees by Col. Stanhope E.

Blunt. The building is given in memory of the late Dr. Chapin of Springfield by some of his many friends.

SOCIAL SERVICE AT THE MASSACHUSETTS GENERAL HOSPITAL.—On Tuesday of last week, February 9, the annual meeting of the Social Service Department of the Massachusetts General Hospital was held in the out-patient department under the chairmanship of Dr. Richard C. Cabot. Dr. Frederick A. Washburn spoke on "Advantages and Limitations of Social Service from the Point of View of an Administrator"; Dr. Hugh Cabot on "Hospital Social Service as a Laboratory of Democracy," and Dr. W. S. Wright on "Social Work as Seen by an Interne."

INFANT MORTALITY IN BOSTON.—At a recent meeting of the Board of Trustees of the Boston Milk and Baby Hygiene Association, it was reported that the total number of babies under the supervision of the Association in January, 1915, was 1815, an increase of nearly 500 over the corresponding month last year. The Association voted to support a bill (Senate No. 78) "To Protect the Public Health Against Danger from the Sale of Impure Milk and Cream."

During the past four years Boston has risen from seven to second rank among the ten largest cities in the United States with an infant mortality rate below 160. The present standing of these cities in regard to infant death rate per thousand births during the first year of life is as follows:

New York	94.6
Boston	103.4
St. Louis	103.4
Pittsburgh	115.2
Cleveland	116.4
Philadelphia	117.6
Buffalo	121.5
Detroit	122.4
Chicago	132.7
Baltimore	154.6

Mr. George R. Bedinger, director of the Boston Milk and Baby Hygiene Association, has recently made the following statement of the increase in work of the Association during this period:

"As the main agency doing directly preventive and educational work for babies, the Milk and Baby Hygiene Association during 1910 cared for 1870 babies in nine milk stations. In four years the increase has been over 100% in babies supervised and 33% in baby health stations.

"During 1914 in 12 milk stations the Association supervised the health of 4097 babies. Nurses' visits to the homes of the little babies rose from 38,805 in 1910 to 50,221. In 1910 there were 10,847 visits by mothers and babies to the

'well baby clinics' held weekly at the milk stations.

"In 1914 these visits to consult the physicians about the babies' feeding and care were 19,673."

In this connection it is of interest to note the recently published annual report by Miss Julia C. Lathrop, chief of the Federal Children's Bureau to the department of labor, on the investigation into infant mortality made by the Bureau at Johnstown, Pa. In the poorest sections of this city the infant mortality was 271 per thousand, more than five times that of the better residential districts.

"Babies whose fathers earned \$10 a week or less, died at the rate of 256 per thousand, while those whose fathers earned \$25 or more a week, died at the rate of 84 per thousand. Artificially fed babies died at a much more rapid rate than breast fed babies. Only 46.6 babies per thousand died under one year of age, when breast fed at least three months, as against 165.8 per thousand who died when fed with artificial foods. When mothers were employed a large part of the time in heavy work, babies died at a rapid rate. In one group of nineteen mothers whose babies all died, fifteen had been keeping lodgers. In houses where water had to be obtained from outside, the death rate was found to be 198 per thousand, as against 118 per thousand in houses where water was supplied by pipes."

Similar investigations are now being made by the Bureau at Lancaster, N. H., and Saginaw, Mich. In the preface to her report Miss Lathrop writes as follows of the general social importance of the subject of infant mortality:

"Infant mortality is a subject of profound social importance. The modern view has ceased to be fatalistic; infant mortality is now regarded as a preventable waste, injurious to survivors as well as destructive to infants, and cruelly increasing the burden of rearing a family. Sir Arthur Newsholme, the great English authority, has said, 'Infant mortality is the most sensitive index we possess of social welfare and of sanitary administration, especially under urban conditions.' Naturally, the United States has as yet no means of measuring the extent and significance of its infant mortality. If it were practicable, it would be illuminating to visit each one of the 2,500,000 children who, it is estimated, are born in this country yearly, and to take note of the varying social and economic conditions under which some 300,000 of them die and the others survive. As this is manifestly impossible, the nearest approach is to consider certain communities typical of the whole, and it is believed that in the course of a few years' study such data can be presented as will give the United States a fairly adequate measure of the conditions under which American-born infants survive or perish, and of the possibilities of modifying those conditions by local action."

The lowest infant mortality rate in the world is that of New Zealand which, in 1910, was only 51 and in 1913 only 38 per thousand births.

Massachusetts Medical Society.

STATED MEETING OF THE COUNCIL.

A STATED meeting of the Council was held at the Boston Medical Library, February 3, 1915, at 12 o'clock, noon, the president being in the chair and the following seventy-one councilors present:

BARNSTABLE.
E. E. Hawes.

BERKSHIRE.
L. A. Jones.

BRISTOL NORTH.
A. R. Crandell.
R. D. Dean.

BRISTOL SOUTH.
E. F. Cody.
J. H. Gifford.
H. G. Wilbur.

ESSEX NORTH.
R. V. Baketel.
F. W. Snow.

ESSEX SOUTH.
N. P. Breed.
W. G. Phippen.
H. E. Sears.

FRANKLIN.
G. P. Twitchell.

HAMPDEN.
T. L. Bacon.
J. M. Birnie.
G. D. Henderson.
M. B. Hodskins.

MIDDLESEX SOUTH.
F. E. Bateman.
J. E. Cleaves.
C. H. Cook.
H. F. Curtis.
G. W. Gay.
A. A. Jackson.
C. E. Prior.
E. H. Stevens.
J. O. Tilton.

NORFOLK.
G. G. Bulfinch.
P. W. Carr.
H. C. Ernst, *chairman*.
G. W. Kaan.
E. W. Finn.

G. H. Francis.
T. F. Greene.
T. J. Murphy.
W. H. Robinson.
B. E. Sibley.
C. F. Stack.

NORFOLK SOUTH.
O. H. Howe.
A. E. Paine.
F. G. Wheatley.

SUFFOLK.
J. W. Bartol.
H. I. Bowditch.
E. M. Buckingham, *treas.*
W. L. Burrage, *sec'y*.
David Cheever.
E. A. Codman.
J. A. Cogan.
W. H. Devine.
C. Frothingham, Jr.
W. H. Grainger.
C. M. Green, *chairman*.
W. C. Howe.
H. T. Hutchins.
R. W. Lovett.
J. L. Morse.
A. G. Richardson.
M. A. Smith.
R. M. Smith.
G. B. Shattuck, *chairman*.
Beth Vincent, *chairman*.
H. F. Vickery.
C. F. Withington.

WORCESTER.
W. P. Bowers.
C. A. Church.
W. J. Delahanty.
Homer Gage.
David Harrower.
G. O. Ward.
L. F. Woodward.
S. B. Woodward.

WORCESTER NORTH.
H. W. Page.

The minutes of the last meeting were read and accepted.

The president read an obituary of Councilor Harry Clifton Boutelle, who died January 24, 1915 (see BOSTON MEDICAL AND SURGICAL JOURNAL, February 4, 1915, page 200.)

The reports of the committee appointed to consider the petitions of the following named Fellows for reinstatement in the Society were adopted, voting their restoration to the privi-

leges of Fellowship provided they discharge all indebtedness within one month: A. W. Parsons, W. H. Coon, J. W. O'Connor, J. F. Moore. Petitions for reinstatement from the following were referred to committees: J. A. Ceconi, F. X. Mahoney, R. F. Burns, C. H. Phillips, E. O. Tabor, J. J. Sullivan.

The president nominated and the council elected the following delegates:

To National Legislative Committee and Council on Health and Public Instruction of the American Medical Association at Chicago, M. J. Rosenau. To Conference on Medical Education and Meeting of Association of American Medical Colleges at Chicago, H. C. Ernst.

Members of House of Delegates, American Medical Association, for two years:

Hugh Cabot, Boston, Alternate, F. B. Lund, Boston. B. W. Paddock, Pittsfield, Alternate, E. F. Cody, New Bedford.

To Rhode Island Medical Society:
A. S. MacKnight, Fall River, W. H. Butler, Fall River.

To Connecticut State Medical Society:
A. L. Cooley, Chicopee Falls, G. Z. Goodell, Salem.

To Main Medical Association:
C. H. Bangs, Lynn; F. W. Snow, Newburyport.

To New Hampshire Medical Society:
G. H. Gray, Lynn; W. H. Merrill, Lawrence.

Dr. R. I. Lee was appointed to fill a vacancy in the Standing Committee on Public Health.

The treasurer's report was read by Dr. Buckingham and the report of the Auditing Committee by Dr. Blakely (see page 277).

Voted, To accept the reports.

The following report of the Committee on Membership and Finance concerning membership, was read by Dr. Green:

The Committee on Membership and Finance makes the following recommendations:

1. That the following named Fellows be allowed to retire, under the provisions of Chapter I, Section 5, of the by-laws:

Abbott, Stephen Wendell, of Lawrence.
Booth, Edward Chauncey, of Somerville.
Chipman, William Reginald, of Chelsea.
Driver, Stephen William, of Cambridge.
Gibbs, Locero Jackson, of Chicopee Falls.
Pillsbury, Warren Wilbur, of Newburyport.
Prescott, Charles Dudley, of New Bedford.
Robinson, Lucy Morton, of Brockton.
Sanborn, Edwin Aaron, of Somerville.
Stutson, William Peckham, of Cummington.
Tucker, Edward Tobey, of New Bedford.
White, Emory Lincoln, of Somerville.
Woods, George Lyman, of Springfield.

2. That the following named Fellows be allowed to resign, under the provisions of Chapter I, Section 7, of the by-laws:

Arms, Burdette Loomis, now of the University of Texas.

Bruce, Harold Milton, of Plymouth.

Dean, Charles Henry, now of Salisbury, Vt., formerly of Northampton.

Eaton, William Edward, Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

Gaffney, Mary Evangeline, now at The Convent, Newport, R. I.

Karsner, Howard Thomas, now of Western Reserve School of Medicine, Cleveland, Ohio.

Parker, Edwin Monroe, now of Reed's Ferry, New Hampshire.

Robinson, Samuel, now at the Mayos' Clinic, Rochester, Minnesota.

Smith, Earl Moulton, of 248 E. Main St., Amsterdam, N. Y.

Wright, George Hermann, of New Milford, Conn.

3. That the following named Fellow be allowed to resign, as requested by the Committee on Ethics and Discipline:

Papoulacos, Panagiotis, of 176 Huntington Avenue, Boston.

4. That the following named Fellow be deprived of the privileges of Fellowship for non-payment of dues, under the provisions of Chapter I, Section 8, of the by-laws:

Brown, Joseph, formerly of Worcester, now of Des Moines, Iowa.

For the Committee on Membership and Finance,
CHARLES M. GREEN, *Chairman*.

Voted, To accept the report and adopt its recommendations.

Dr. Beth Vincent reported for the Committee of Arrangements and sketched the plans of his committee for the annual meeting. Two alternatives were outlined, one to have the meeting at the Copley-Plaza Hotel as last year, and the other to have most of the meetings in the Boston Medical Library and the dinner elsewhere. The committee favored the former plan at an estimated expense to the Society of \$1,775, an itemized estimate being furnished. Dr. G. W. Gay spoke on a proposition which had been advanced at a previous meeting of the Council, namely, that those who attend an annual dinner of the society should defray all of the expense of the dinner. He favored such a plan in the interests of economy and to promote the affiliation between the BOSTON MEDICAL AND SURGICAL JOURNAL and the Society and made a motion to this effect. After considerable discussion the motion was put to a vote and lost.

Dr. G. B. Shattuck reported for the Committee on Publications and Scientific Papers that Dr. Theodore C. Janeway will be the Shattuck Lecturer in the year 1916.

The following report of the Committee on Membership and Finance, concerning finance, was read by Dr. Green:

The Committee on Membership and Finance makes the following recommendations:

1. That a dividend of \$4000, from the balance remaining in the treasury on December 31, 1914, be apportioned among and paid to the district societies, in accordance with the provisions of Chapter VII, Section 3, of the by-laws.

2. That appropriations for Standing Committees for the financial year 1915 be made as follows:

For the Committee of Arrangements.....	\$1775
For the Committee on Medical Education and Medical Diplomas.....	50
For the Committee on State and National Legislation	250
For the Committee on Public Health.....	75

3. That to make possible the continuance of the

affiliation of this Society with the BOSTON MEDICAL AND SURGICAL JOURNAL, the Council appropriate for the year 1915 the sum of \$9500, this sum to be reduced by such sum as may be raised by special subscription.

4. That the Advisory Committee representing the Massachusetts Medical Society on the Board of Management of the BOSTON MEDICAL AND SURGICAL JOURNAL be authorized by the Council to secure pledges towards the maintenance of the JOURNAL.

For the Committee on Membership and Finance,

CHARLES M. GREEN, *Chairman*.

After several questions by councilors had been answered by Dr. Green and the president it was,

Voted, To accept the report and adopt its several recommendations.

Dr. E. E. Hawes spoke on the desirability, from the standpoint of Fellows who live at a distance, of having the annual dinner in the middle of the day, because of the amount of time required to attend a dinner in the evening. No action taken.

Dr. Gay referred to a suggestion made in an editorial in the BOSTON MEDICAL AND SURGICAL JOURNAL of October 1, 1914, entitled "The Minister and the Doctor," to the effect that there might be coöperation between the Massachusetts Federation of Churches and the Massachusetts Medical Society to perfect a plan of joint action to better health conditions in the State. He read this extract from a letter written to the secretary by the Rev. Samuel C. Bushnell, chairman of the Committee on Philanthropies of the Federation, dated January 27, 1915:

"At a meeting of the Committee on Philanthropies of the Massachusetts Federation of Churches it was voted, this afternoon, to overture the Council of the Massachusetts Medical Society to see if some method of coöperation might not be devised whereby the doctors and ministers throughout the state might get together for the benefit of their local communities.

"The plan met with the heartiest approval of all present—six of our committee of seven, Hon. Mr. Luce of Somerville being absent. If your Council would appoint a committee to meet as many of our committee as could get together on the day chosen we could discuss the general question and possibly reach some decision which might appeal to both organizations."

The president said that the Federation of Churches was composed of representatives of practically all the religious denominations and he understood that the Committee on Philanthropies was ready to favor desirable legislation, as well as to work with a Committee from our Society. On motion by Dr. Gay it was,

Voted, That the Committee on Public Health of the Massachusetts Medical Society be hereby authorized to coöperate with the Committee on Philanthropies of the Massachusetts Federation of Churches in such activities, having for their object the improvement of sanitary and social conditions of this Commonwealth, as the said committee may think wise and proper.

DR. E. H. BRIGHAM presented the following memorandum concerning an early meeting place and the fourth president of the Society:

In 1783 the land now substantially covered by the Phillips Building on the north corner of Tremont Street and Hamilton Place was occupied by what was called the "Manufactory House," which belonged to the Commonwealth of Massachusetts and had been used as a barracks during the Revolution. On March 20, 1783, the General Court passed a resolve permitting the Academy of Arts and Sciences and the Massachusetts Medical Society to make use of and improve the room in the Manufactory House, which had for some time past been occupied for a school by Mr. Vinal.

On February 13, 1784, the General Court passed a resolve that Samuel Phillips, Jr., Caleb Davis and John Rowe be a committee to make sale of the Manufactory House with the land thereto belonging. In pursuance of this resolve the estate was sold and by deed dated March 24, 1784, conveyed by this committee to the Massachusetts Bank. (Registry of Deeds, Suffolk County.)

"At a meeting of the American Academy of Arts and Sciences at the University in Cambridge, November 13, 1782,

Voted: That the Hon. Cotton Tufts, Esq., Ebenezer Storer, Esq., and the Rev. Mr. Howard be a committee to join with a committee, in case one should be appointed for the purpose by the Medical Society at their next meeting, in procuring a convenient room in the Town of Boston, in which both societies may hold their respective meetings."

"At a meeting of the American Academy of Arts and Sciences, in the County Courthouse and by adjournment in the Manufactory House in Boston, May 27, 1783,—

Whereas, The General Court did by a Resolve dated (no date given) grant to the American Academy and the Medical Society the use of a room in the Manufactory House in Boston in which to hold their respective meetings during the pleasure of the Court; and whereas certain repairs are necessary in said room,

Voted: That the Hon. Cotton Tufts, Esq., Ebenezer Storer, Esq., and the Rev. Simeon Howard be a committee to join a committee of the Medical Society in making such repairs as they may judge necessary at the expense of the two societies equally; and in framing such regulations respecting the room as they may think proper and report at the next meeting."

"A Petition of Mons. John Mary requesting liberty to teach the French language in the room granted to this Academy and the Medical Society by the General Court was read, whereupon

Voted: That Ebenzer Storer, Esq., the Rev. Dr. Cooper and the Hon. Robert T. Paine, Esq., be a committee to join a committee of the Medical Society (in case one should be appointed) in considering and determining on said Petition, their doings to be valid 'til the further order of

the Academy." (Records American Academy Arts and Sciences.)

Three meetings of the Academy were held in the "Manufactory House," December 31, 1783, January 20, and April 1, 1784.

The Hon. Cotton Tufts, Esq., mentioned is Dr. Cotton Tufts of Weymouth, a state senator, who was an original incorporator and second vice-president of the Massachusetts Medical Society, 1785-1787; and fourth president, 1787-1795; also an incorporator of the American Academy of Arts and Sciences.

His portrait, given to the Library by William Tufts Brigham, A.B., Harvard, 1862, of Honolulu Hawaii, is now in the Fifield Room of the Boston Medical Library and was shown to the Council by the librarian.

Dr. Gay addressed the Council on the need of better care for the inebriates of the State. He said that it had been suggested that non-criminal inebriates be given an indeterminate sentence to the Norfolk State Hospital, working through the out-patient department in Boston, rather than follow the present custom of committing them to the House of Correction at Long Island, as is the case in the County of Suffolk. The latter plan, while not being humane, was a very large expense to the county. He thought that the Society should work to forward this movement. The chairman said that the Committee on State and National Legislation was prepared to promote this proposition.

Adjourned at 1.20 p. m.

WALTER L. BURRAGE, *Secretary.*

MASSACHUSETTS MEDICAL SOCIETY.

TREASURER'S REPORT FOR THE YEAR 1914.

Mr. President and Fellows of the Society:

Your treasurer has to report the finances of the Society for the year 1914 as follows:

RECEIPTS.

Balance January 1, 1914 \$11,990.74
Assessments paid to District Treasurer:

Barnstable	\$ 173.00
Berkshire	353.00
Bristol North	287.00
Bristol South	616.00
Essex North	774.00
Essex South	991.00
Franklin	173.00
Hampden	979.00
Hampshire	311.00
Middlesex East	370.00
Middlesex North	572.00
Middlesex South	2,334.00
Norfolk	2,047.00
Norfolk South	255.00
Plymouth	494.00
Suffolk	3,156.00
Worcester	1,235.00
Worcester North	343.00

\$ 15,463.00

Assessments to Treasurer	1,101.00
Assessments at annual meeting..	285.00
Sale of dinner tickets	715.00
Interest on Massachusetts bonds	560.00
Interest on funds subject to New England Trust Co.	\$181.19
check:	
Old Colony Trust Co.	127.17
	<hr/>
	308.36
Interest on annuity policies of the Mass. Hospital Life Ins. Co.	867.86
Interest on Savings Bank de- posits	164.58
Sale of copy of Directory	1.00
	<hr/>
	\$31,456.54

EXPENSES.

President's expense:	
Printing and postage	\$ 12.65
Traveling	11.63
	<hr/>
	\$24.33
Secretary's expense:	
Record book	\$ 1.25
Printing and stamped envelopes	333.65
Stenographers at Section meet- ings	70.00
Engrossing	20.30
Addressing programs	15.00
Directories	12.00
Incidentals	29.29
	<hr/>
	\$481.49
Librarian's Expense:	
Index cards	\$ 14.00
Files	3.50
Postage and expressage	142.05
Printing and postal cards	56.50
Typewriting	10.00
	<hr/>
	\$226.05
Treasurer's expense:	
Printing and stamped envelopes	\$152.17
Stationery and account books.	15.15
Clerical work	60.74
Treasurer's bond	37.50
Rent of box, Old Colony Trust Co.	10.00
Incidentals	4.33
	<hr/>
	\$279.89
Bank charges	1.00
District Treasurers' expense:	
Commissions	\$773.15
Postage, printing, etc.	229.51
	<hr/>
	\$1,002.66
Supervisors' expense	24.88
Censors' expense	540.45
Shattuck lecture	200.00
Cotting lunch	286.05
*BOSTON MEDICAL AND SURGICAL JOURNAL	3,175.75
Delegates to American Medical Association and its committees	286.67
Rent	750.00
Salaries	1,700.00
Return of overpaid assessments less commission	26.60
Annual dividend	3,000.00
Committee on publications and Scientific Papers:	
Printing and Distributing....	869.55

Committee on Ethics and Disci- pline:	
Mileage	\$ 12.00
Committee on State and National Legislation:	
Legislative Bulletin	\$ 10.00
Stenographer	22.78
Printing envelopes and station- ery	25.50
Incidentals	48.00
	<hr/>
	\$106.28

Committee of Arrangements:	
Bond boxes	\$ 1.80
Printing and stamped envelopes	107.00
Stationery .....	.58
School supplies	2.55
Badges	4.90
Stereopticon	5.00
Clerks	60.00
Police	32.00
Music	125.00
The Copley-Plaza Hotel.....	3,053.75
Cigars	77.61
	<hr/>
	\$3,470.19

Committee of Chairman of the Committee of Arrangements and Chairmen of Sections:	
Mileage	7.22
Committee of Nine:	
Stenographer	\$ 28.18
Mileage	50.54
	<hr/>
	78.72
	<hr/>
	\$16,549.78

Balance January 1, 1915	\$14,906.76
Balance January 1, 1914	11,990.74
	<hr/>
Increase over last year.	\$ 2,916.02

Against this increase must be set an indeterminate sum representing the amount still to be paid to the BOSTON MEDICAL AND SURGICAL JOURNAL.

The balance is distributed as follows:

Deposit in the New England Trust Co....	\$7,242.63
Deposit in the Old Colony Trust Co.....	7,697.13
	<hr/>
	\$14,939.76
Deduct checks still out.....	33.00

Balance called for..... \$14,906.76
The change in the deposit from the Bay State Trust Co. to the Old Colony Trust Co. is because of the consolidation of these two institutions.

PERMANENT INVESTMENTS.

Shattuck Fund:	
Annuity policy, Massachusetts Hospital Life Insurance Co.....	\$ 9,166.87
Phillips Fund:	
Massachusetts 3½ per cent. bond.....	10,000.00
Cotting Fund:	
Deposit in Roxbury Institution for Sav- ings	1,000.00
Deposit in Provident Institution for Sav- ings	1,000.00
Deposit in Suffolk Savings Bank.....	1,000.00
Permanent Fund:	
Annuity policy in Massachusetts Hospital Life Insurance Co.....	11,253.30
Massachusetts 3½ per cent. bonds.....	6,000.00
Deposit in Franklin Savings Bank.....	1,074.48
	<hr/>
	\$40,494.65

There has been no change in these funds during the year.

EDWARD M. BUCKINGHAM, *Treasurer.*

* It appears by bills presented by the JOURNAL in July and October, that up to that time \$3,399 had been collected upon the guarantee subscriptions.

REPORT OF AUDITING COMMITTEE.

The undersigned, a duly appointed committee, having examined the books of the Treasurer, find them correctly cast and properly vouched, and also that he has in his possession the securities called for.

DAVID N. BLAKELY.

JAMES LINCOLN HUNTINGTON.

Boston, Feb. 1, 1915.

Obituary.

THOMAS BRYANT, F.R.C.S., M.Ch., M.D.

MR. THOMAS BRYANT, who died in London, on Dec. 30, 1914, was born in Kennington on May 26, 1828, the son of a surgeon. He was educated at King's College, and in 1846 entered the Guy's Hospital Medical School. He qualified as M.R.C.S. in 1849 and as F.R.C.S. in 1853. In 1857 he was appointed assistant surgeon at Guy's Hospital, and in 1858 lecturer on clinical and in 1859 on operative surgery. In 1871 he became full surgeon at Guy's Hospital and in 1872 first published his famous text-book on the practice of surgery, a second edition of which appeared in 1876 and a third in 1879. This work was a monument in the progress of surgery since, prior to its time, there had been published but one other large system of surgery, that of Erichsen.

In 1875 Mr. Bryant was appointed lecturer on surgery at Guy's Hospital and continued active there in the practice of his profession until his retirement as consulting surgeon in 1888. In that same year he delivered the Hunterian Oration and in 1889 the Bradshaw Lecture. From 1891 to 1894 he was president of the Royal College of Surgeons of England and from 1891 to 1894 served as its representative on the general medical council. In 1896 he was appointed Sergeant Surgeon Extraordinary to Queen Victoria and subsequently became Surgeon in Ordinary to King Edward and King George. He was a member of the Medical Society of London, the Hunterian Society, the Clinical Society and the Royal Medical and Chirurgical Society. He had received honorary medical degrees from the Royal University in Ireland and the University of Dublin.

Mr. Bryant was married in 1862 and is survived by three daughters and four sons.

Mr. C. H. Golding-Bird, writing of Mr. Bryant in the *Lancet*, speaks as follows of the latter's personal characteristics:—

"A handsome man, of commanding presence, with a personality that impressed itself on others, genial, kindly, and always ready to lend an ear to any that sought his advice. Bryant was the friend of all who knew him, whether student, colleague, or patient. The student felt that in him he had a friend to whom he could go for ad-

vice at all times, and never fail to get his sympathy and help. To his dressers' mistakes he was lenient, and whilst he never overlooked anything nor hesitated to correct, he at the same time explained and instructed so as to avoid a repetition of a similar mischance. As a colleague he was valued by all, and though 'once upon a time' there arose a serious difference between himself and a colleague that even threatened the peace of the hospital, he met his quondam friend in the open court of the operating theatre at the instance of their other colleagues, and both men publicly shook hands and thus closed the incident forever. Beyond this nothing ever happened to disturb the harmony with which Bryant performed his public duties at Guy's Hospital; and those who knew him personally will always cherish the memory of him as of a true friend, a courteous gentleman, and if not exactly a pioneer, at any rate a splendid example of the British surgeon."

Miscellany.

THE HEALTH OF YORK.

A BRIEF review of the situation at York, Maine, in regard to public health is not amiss at the opening of the new year. In the late summer and early autumn of the past year there were a number of cases of typhoid fever in York Harbor and the vicinity. While these cases were not enough in number and severity to constitute a serious epidemic, the mere presence of the disease in such a popular sea-side resort naturally gives rise to considerable alarm. York met the situation in the following way, which should serve as a model to any other town in similar circumstances. There was no attempt to conceal the fact of the existence of the disease and its extent, the authorities very properly feeling that the way to meet any danger was to face it in the open.

At a meeting of the Village Improvement Society, a committee was appointed to confer with the selectmen and the board of health. As the result of this conference, a town meeting was held late in September and money was voted to meet the cost of a sanitary survey of the town which was made by Professor Milton J. Rosenau of Harvard University. While nothing very startling was discovered, a situation was found which showed that there were conditions which might, and probably did, affect the public health. As a result of the report of Professor Rosenau, a town meeting was held at which it was voted to employ a health officer, and \$2500 was voted for his salary and the expenses incidental to the work.

The town is to be congratulated upon the

selection of Mr. William Eustis Brown as its health officer. Mr. Brown has had a thorough training in sanitation and preventive medicine both at the Massachusetts Institute of Technology and at Harvard University. He is a graduate of the School for Health Officers and has had a varied and wide experience in sanitary work of all kinds, and is well qualified to carry on the work.

This step which York has taken at once places it in the forefront of progress as far as health is concerned. York has determined to safeguard its citizens and all strangers within its gates and give them the security of health that a well ordered sanitary department can furnish. Although blest with natural advantages of an unusual order and admirable location, a charming scenery both of sea and country, and a delightful climate, York is not going to depend upon nature and luck for a clean bill of health. It has been said that "public health is purchasable," the price is moderate and the action of York shows that she intends to enjoy the best attainable protection from disease. Such protection ranks far above any other advantage which a summer resort can enjoy. Many resorts have acted on the policy that a good climate, charm of location and beauty of scenery are sufficient inducements to attract the summer visitor; but nowadays people are more wary and wisely look for more than this before selecting a vacation playground. The visitor wants a clean bill of health for the resort he has chosen and is entitled to have one. York will now be able to furnish this assurance.

There may be some obscurity as to the duties of a health officer in a small town such as York. Cases of communicable disease may arise in any community. Typhoid fever lurks in almost every country district in the land, always ready to strike if the opportunity offers. Some of the 8000 people from various parts of our broad land who visit York annually may introduce infection. It will be one of the duties of the new health officer to ascertain the existence of infectious diseases and take immediate measures to prevent their spread. Cases of such diseases will be traced to their source and practical preventive measures will be applied without delay.

Furthermore, the health officer will examine the sources of water supplies and analyze them. He will inspect the milk supply, visit and examine dairies, see that cows are healthy, that the milk is gathered in a cleanly and safe manner. This is of great importance as disease is often spread through contaminated milk. A little advice as to dairy management is often of great advantage to the milk producer.

Other foods, such as oysters, clams, meat, lettuce, etc., will be inspected by the health officer in order to be sure that the dealers comply with the pure food laws. The health officer will also inspect markets, kitchens, provision shops and store rooms where food is handled and kept. He looks after nuisances, prevents pollution of the

beaches, conducts a campaign against flies and mosquitoes, supervises the harvesting of ice and performs many other duties which are included in the art of hygienic living. He keeps the vital statistics in accordance with modern methods. With careful records he is able to compare the health of York with other communities and to determine whether the measures he is taking are effective; and to trace the progress of health and disease, of births and marriages, and other vital factors affecting every member of the community.

York must some time in the not distant future look forward to the installation of a sewage system. This work must not be undertaken hastily, and information must be collected which will be of service in providing a proper system. To collect such information and to study the local conditions will be a part of the duties of the health officer.

In connection with the position, a chemical and bacteriological laboratory will be equipped where analyses may be made. This laboratory also will be prepared to make blood tests in order to recognize early cases of typhoid fever, to examine throat cultures in order to diagnose diphtheria, and to generally assist the physicians in the early recognition of other infections and to ascertain the time when such cases may be released from quarantine so that they will not menace the community as bacillus carriers.

We may all feel more secure in the health of our families and particularly of our children now that such a work has been undertaken.

(Signed)

JOSEPH P. BRAGDON,
*Chairman of Board of
Selectmen.*

WILLIE W. CUZNER, M.D.
*Secretary of Board of
Health.*

W. T. COUNCILMAN, M.D.
*Chairman of Committee
of Village Improvement
Society.*

CINCHONA OR CHINCHONA

In the issue of the *Medical Press and Circular* for Jan. 20, a Dublin correspondent calls attention as follows to the spelling and history of the name Cinchona, or Chinchona, applied by Linnaeus to Peruvian bark.

"The new edition of the *British Pharmacopoeia* has, I fear, perpetuated the Linnaean spelling Cinchona. Linnaeus sought to honour the memory of the Countess de la Chinchon when in 1742, he named the natural order from which the chinchona bark is obtained Chinconaceae. As the bark was usually put on the market in the condition of powder, it came to be known as the

Countess's powder,' 'Jesuit's powder,' and the 'English remedy,' or 'Talbot's Wonderful Secret for Curing Agues.' On the proposal to alter the spelling by the insertion of the letter h after the initial letter, Murray writes: 'The accepted form is too deeply rooted in botanical and chemical nomenclature to make this expedient.' Withal we should try to perpetuate the name of the illustrious Chinchon family with the introduction of this one of our most precious drugs. The title illustrious is justly borne by the family of the beautiful Lady Ana de Osorio, whose ancestor Ramiro, King of Galicia in 843, is said, by Spanish chroniclers, to have had Saint James as a companion-in-arms at his great victory over the Moors at Clarijo, in which the apostle gave the battle cry of 'Santiago' to Spain. The Lady Ana was born in 1599, and at 16 years old was married to Don Luis de Velasco, who in 1617 became Marquis of Salinas. Two years later the Lady Ana, still young and very beautiful, became both a widow and an orphan. In the autumn of 1621 she married Don Luis Geronimo Fernandez de Cabrera y Robadilla, fourth Count of Chinchon, a descendant of a very ancient family of Catalonia. Soon after their marriage they entertained at Sagovia, their country seat, Charles Prince of Wales and his companion, the Duke of Buckingham. And there are good grounds for believing that it was there that the Prince saw the deaf mutes who had been taught by Pedro Ponce to speak. Sir K. Digby tells us that one of the mutes, Don Pedro Velasco, 'spoke and wrote Latin as well as his mother tongue.'

"In 1628 the Count of Chinchon was appointed Viceroy of Peru, and in 1629 made his public entry into Lima. During his viceroyalty he had the sources of the Amazon explored, he suppressed the revolt of the natives and reformed the conditions under which they lived.

"In 1636 an Indian of Malacotes made Don Francisco Lopez de Cañizares, Corregidor of Lima, acquainted with the properties of quinquina bark, and two years afterwards, when the Countess of Chinchon was suffering from tertian fever, the Corregidor sent her a supply of the native remedy. The medicine was administered by the Court physician, Don Juan de Vegt, and the Countess recovered. On the return of the Count and Countess to Spain in 1640 they were accompanied by their physician, Don Juan de Vega, who brought with him a supply of the valuable bark, which he disposed of under the name of the 'Countess's powder.' "

[NOTE: The error was Linné's: etymologically the name should be Chinchona.—ED.]

Correspondence

REGISTRATION OF NURSES IN MASSACHUSETTS.

BOSTON, MASS., February 5, 1915.

Mr. Editor: Your contention in your editorial criticism of the Bill to amend the requirements for nursing in Massachusetts, seems to be first, an endorsement of the report of the Committee appointed by the New York State Medical Society, and second, that conditions in Massachusetts are satisfactory as they are, and do not call for any change.

Allow me to say that your quoted excerpt from the New York Committee report is simply an endorsement of the work done by the small hospitals in training nurses.

The Massachusetts Board of Registration of Nurses is in sympathy with that statement, and nowhere in this proposed amendment can there be found any expression, direct or implied, which shows criticism of, or antagonism to, the work of small hospital training schools, or the graduates of such schools.

If any one reads into the proposed amendment to the law anything of this sort, it must be the result of prejudice or suspicion.

Further, where you use the words "must get along without trained nursing when sick," and again, when you state that, "Perhaps in the future the nursing profession may provide trained services for all the people for good pay, for small pay, or for no pay at all, just as now the medical profession furnishes skilled care to all the sick," you seem to convey the impression that this proposed amendment will interfere with the practical, or experienced, or the community nurse, who has gradually become useful through her adaptation to the demands of the sick, under the instruction of the physician in charge.

Again, you misinterpret the purpose of this Bill:

The Bill only aims at registration of all nurses in Massachusetts who are useful up to their capacity. The only hardship imposed is the very small amount of time and expense involved. Under this Bill, if enacted into law, every nurse who applied, and was vouched for by a reputable physician, and such other people as might be determined on, would become registered if she showed ordinary intelligence.

The purpose of this Bill is to make it possible to keep some people from being registered, or to take away the right to act as a nurse if a person should demonstrate unworthiness.

For example, a nurse might be convicted of theft. Do you contend that she should be allowed to continue as a nurse? A nurse allowed a patient to develop an exfoliating dermatitis of the whole back and thighs through improper care and neglect. Should she be allowed to repeat this?

A nurse infected a member of a family with the gonococcus. Would you want her to repeat that process?

Nurses have aided and abetted abortionists. Should these people be let alone?

Under our present law, any nurse may do anything from gross carelessness to the most advanced criminality, and so long as she is out of jail she can continue her work.

But you say the the responsibility rests with the physician. Families often select their own nurses, for personal or financial consideration, and the doctor acquiesces unless he knows of some reason to the contrary.

Do you want each doctor to find out for himself that a nurse is incompetent and should not occupy this position of trust? Assume that a nurse loses the confidence of the people in one community, there is nothing to prevent her going to another city and starting all over again.

I agree with those who say that these illustrations are not common. I fully appreciate the faithful work

and high ethical sense of the great majority of nurses, but there are exceptions. If we eliminate the few unworthy ones, there will be more confidence in this profession.

Before dealing with this matter relating to the registration of nurses, it would seem that there are more weighty questions which should receive at least equal consideration, such as attacks which are being made upon medical practice in some of the Bills which you have not seen fit, as yet, to make note of in your editorial column. Would it not be well to devote an equal space to some of the following Bills:

Providing for the registration of chiropractors.

Providing for the registration, without examination, of physicians from without the state, and for a less fee than is required of our own physicians.

Providing for the registration of those who treat by the use of herbs. This Bill is introduced with the intent to provide for the registration of a certain person, and is, therefore, class legislation.

Again you say, "That the Board of Registration of Nurses should have supervision over the training school for nurses is a debatable point and does not correspond with the practise in the case of the Board of Registration in Medicine and the medical schools."

Permit me to call your attention to the fact that no medical school can legally confer a degree upon its graduates unless authorized by the Legislature so to do, but there is nothing to prevent any training school from conferring diplomas upon its graduates, and a well-known correspondence school does so confer them.

The proprietor of a pseudo-medical institution in this city, was recently convicted and fined for granting degrees without being authorized by the state so to do.

I would very much like to have you call attention to any other features of this Bill which you do not approve of.

Respectfully,
WALTER P. BOWERS, M.D.

A MISREPRESENTATION CORRECTED.

BOSTON, MASS., February 4, 1915.

Mr. Editor: In the February number of *McClure's* magazine, I am quoted in an article by R. H. Schauffler as backing Bernard Shaw's charges against the medical profession, except his attitude on animal experimentation. Shaw's attack is summarized in his own words, including the following sentence: "Most doctors have no honor and no conscience." Other sentences in Shaw's habitual exaggerative style follow and my approval of them all is assumed. The facts of the matter are as follows:

In the *Survey* of June 3, 1911, I wrote, at the request of that magazine, a review of Shaw's play entitled, "The Doctor's Dilemma," and said that as regards "Mr. Shaw's principal theses and in the main, I find myself heartily in agreement with him." I did not suppose that anyone would take Shaw seriously enough as to suppose that a ridiculous calumny, such as the statement that "most doctors have no honor and no conscience" would be regarded as a significant or an important remark. It should go without saying that I have no sympathy with such a statement, as I believe the medical profession to be as honorable and conscientious a body of men as any in the country. In the article on which Mr. Schauffler's misstatement of my position is founded, I summed up what in my opinion were the just offences of our profession, offences, which we all recognize and deplore. I specified such shortcomings as these,—that we do not tell patients with sufficient vigor the truth about their habits and their own responsibility for disease; that we sometimes foster cases of imaginary illness; that we sometimes perform unnecessary operations; that feesplitting and other abuses are widespread. No one, I suppose, will doubt these facts and no one will have much doubt that they will continue as long

as the doctors of the country are as miserably poor as at present. So long as the economic status of the doctor is what it is, we cannot look for much improvement in that direction.

This was Shaw's belief about the whole matter and it is mine. It is not a question of blaming anybody but of getting something done. That "something" is to diminish the number of doctors by the raising of the standards of examining boards for the license to practise medicine. This is what the medical profession can do, of itself, and do immediately. It cannot, of itself, carry out the other greatly-needed reform which I believe is coming through the more intelligent activity of hospital trustees, namely, the payment of hospital physicians for full time work and the selection of these physicians by methods that exclude favoritism and the methods of the close corporation.

I should add that I understand perfectly Mr. Schauffler's unintentional mistake in the statement of my position. He is a man for whom I have the greatest admiration and I am sure he would not willingly misrepresent anyone.

Yours sincerely,
RICHARD C. CABOT, M.D.

INFORMATION ABOUT DR. SMILIE.

BOSTON MEDICAL LIBRARY, Feb. 9, 1915.

Mr. Editor: Dr. Elton Romeo Smilie about whom inquiry was made by your correspondent in last week's issue of the *JOURNAL*, received the degree of M.D. in 1845 from the Castleton Medical College, Castleton, Vt. He apparently settled for a time in Boston, but in 1849 he removed to San Francisco. He was dropped from The Massachusetts Medical Society in 1846 with many others who had removed from the state. In 1886, according to Polk, he was living at 649 Washington Street, San Francisco. No later record of him has been found.

Very truly yours,
"ASSISTANT."

THE ROENTGEN DIAGNOSIS OF PULMONARY TUBERCULOSIS.

PROVIDENCE, R. I., Feb. 2, 1915.

Mr. Editor: In the *JOURNAL* for Jan. 28, 1915, there appears a review of "Progress in Tuberculosis," by Dr. J. B. Hawes, 2d, and Dr. P. C. Bartlett. In this paper several statements are made regarding the present status of the Roentgen diagnosis of pulmonary tuberculosis, which I do not believe it is fair to allow to stand uncorrected. One would infer from this report that the Roentgen rays have their greatest field of usefulness in the diagnosis of tuberculosis in infancy and childhood; and that, with regard to the early diagnosis in adults, they furnish merely a useful adjunct, much inferior to the other clinical methods of investigation. This is practically the same idea as is expressed in the very few scant paragraphs devoted to this subject in the recent booklet, by Hawes on "Early Pulmonary Tuberculosis."

As a matter of fact, the real situation is just the reverse. With children, the Roentgen examination usually furnishes merely helpful evidence, whereas with adults the Roentgen rays can establish definitely the presence or absence of pulmonary tuberculosis.

In infancy and childhood, the examination is largely limited to the discovery of enlarged tracheo-bronchial lymph-nodes. It is well-known that these glandular enlargements may be the result of non-tuberculous infections, such as measles, scarlet fever, pertussis, etc. Even if known to be tubercular, we cannot receive much help from the Roentgen rays in differentiating between infection and disease. This is the real problem involved, and, with respect to this, the clinical aspects of the case are the most important ones.

Of course at times other tuberculous processes may

discovered in the Roentgen examination of children's lungs, but the above are the most important findings. Indeed the entire matter of diagnosis of perculosis in children is far from satisfactory, and the Roentgen evidence is not yet standardized.

With adults, however, the situation is quite different. It is here that the Roentgen examination has its best valuable applications.

The physical conditions present in the pulmonary condition are peculiarly suitable to the early detection of pathological processes by the Roentgen rays. The Roentgen plate is merely a record of differences in density of the various tissues through which the rays pass. The greater the difference in density between adjacent structures, the more striking will be their differentiation upon the sensitive plate. In the gaseous content of the pulmonary alveoli we have a medium which allows the Roentgen rays to pass through with only the very slightest amount of absorption. Against this background of practically no resistance, pathological processes of very minute size stand out with a sufficient degree of differentiation to be recorded definitely upon the plate. We can thus show the tubercles along definite paths of invasion. Of course lesions of purely microscopic size cannot be differentiated. But clinically we are only concerned with lesions which have already gone somewhat beyond this stage.

It is thus possible to detect an area of tuberculous infiltration not large enough to furnish any definite changes with percussion or auscultation, even though employed by the most expert. Everyone must admit that there are threshold limits to the data obtainable by the usual clinical methods. Fortunately, however, the physical conditions which I have outlined above permit the threshold of differentiation by the Roentgen rays to be much earlier.

These same principles apply, it is true, to children. The difference in the pathological processes found in children renders the evidence less valuable than in adults.

These claims are not merely the "words of enthusiasts." They are the matured and calm conclusions of many able and conservative investigators, scattered throughout the world. It is of course true that this extremely early diagnosis cannot be made by superficial or careless Roentgen methods. It requires the use of the fluoroscope, several plates taken very carefully both in the antero-posterior and postero-anterior positions, especially the use of stereoscopic plates, and finally an extremely careful and conscientious study of these plates. When these methods have been carefully carried out it is not boasting to state that tuberculous lesions can be detected where the physical signs may be entirely lacking.

The clinical diagnosis of pulmonary tuberculosis is based purely upon history and constitutional reaction and may be correct in some cases, but it also frequently leads to the unnecessary treatment and segregation of non-tuberculous patients, including those suffering from syphilis, hyperthyroidism, etc. With such cases, negative Roentgen examination, when the above-mentioned methods have been carried out, can easily separate them out. This negative phase of Roentgen diagnosis is just as important as its positive aspect. The Roentgen method today furnishes the only safe method of eliminating absolutely the possibility of pulmonary tuberculosis in the adult.

The statement that "in border-line cases the Roentgen rays cannot determine the activity of a tuberculous process" does not give a fair idea of the facts. This statement may be true in some few cases of extensive tuberculosis, where there is a mixture of old and new processes and fresher ones. Here the clinical diagnosis is of extreme importance. This problem however has no place in the early diagnosis of tuberculosis. If we wish to know definitely whether there is a tuberculous process present or not. With the Roentgen method, in competent hands, this problem can be solved.

I have dwelt thus at length upon this subject as I do not think it is fair, in what purports to be a Review of Progress, to thus sweep aside, with a wave of the hand, valuable investigations that have added so much to our present diagnostic armament.

It is perhaps possible that the review represents merely the opinions of the authors, based upon their own personal experience. In that case, all I can say is that they have indeed been unfortunate in their choice of Roentgenologist.

Very truly yours,

ISAAC GERBER, M.D.

RECREATION FOR MEN IN SANITARIA.

Boston, Harvard Hotel, Feb. 3, 1915.

Mr. Editor:

In most sanatoria, men, unless very ill or very aged, have an unnecessarily stupid time, which helps morbid introspection. Women are content to sit in their rooms, read and sew. Every well-conducted sanatorium should have first, a separate recreation room for men, with magazines and games, where they can get away from the women, especially in the morning. There ought to be within easy reach light gymnastic apparatus and a shower bath for use in the morning. Secondly, it should have a billiard table, preferably of the large English type. Third, there should be a workshop with desks, stock, tools, a lathe and possibly an instructor—men who teach sloyd can be hired at a nominal salary.

If a man is confined to the house by a three days' storm, he suffers from want of exercise, and the billiard table and workshop would help very much. The writer believes that passive exercise cannot take the place of active exercise, and he thinks the professional entertainer, not Harry Lauder, but women who recite character sketches, are very tiresome.

Yours very truly,

EDWARD L. PARKS, M.D.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING FEBRUARY 6, 1915.

Dr. Lewis S. McMurtry of Louisville, Ky., and Dr. Charles A. L. Reed of Cincinnati, Ohio, have consented to become members of the Committee of American Physicians for the Aid of the Belgian Profession.

At the request of the Treasurer, the Executive Committee has arranged to have the accounts audited quarterly. The first audit will be made about the twentieth of March.

CONTRIBUTIONS.

Dr. Willard Barlett....	St. Louis, Mo	\$ 10.00
Dr. M. Manges.....	New York, N. Y.....	15.00
Dr. G. D. Hale, P. A.		
Surg. U. S. N.....	San Francisco, Cal....	10.00
Dr. Alfred Wiener.....	New York, N. Y.....	10.00
Dr. John Woodman....	New York, N. Y.....	5.00
Dr. Robert T. Frank....	New York, N. Y.....	10.00
Cash—B	Pittsburgh, Pa.....	10.00
Dr. R. O. Raymond....	Flagstaff, Ariz.....	10.00
Dr. A. Hymanson.....	New York, N. Y.....	5.00
Dr. Mazyok P. Ravenel..	Columbia, Mo.....	15.00
Oklahoma State Med.		
Asso.	Muskogee, Okla.	100.00
Dr. H. H. Sherk.....	Pasadena, Cal.....	25.00
Dr. Charles Lee King....	Pasadena, Cal.....	20.00
Dr. James Williamson..	Philadelphia, Pa.	5.00
Dr. J. S. Kauffman....	Blue Island, Ill.....	5.00
Dr. John P. Treanor....	Dorchester, Mass.	10.00
The Clinical Club of		
Albany	Albany, N. Y.	25.00

Dr. Thomas J. Watkins. Chicago, Ill.	50.00
Dr. H. E. Oesterling... Wheeling, W. Va.	10.00
Dr. Leslie W. Schwab... Chicago, Ill.	2.00
Dr. A. Howard Smith... Marietta, Ohio.....	5.00
Dr. Woodson H. Taul- bee	Maysville, Ky..... 5.00

Total\$ 362.00

Previously reported receipts.....\$2,166.00

Grand Total\$2,528.00

Previously reported disbursements..\$2,090.00
Disbursements week ending Feb. 6.. 440.00

Total disbursements.....\$2,530.00

Deficit\$ 2.00

F. F. SIMPSON, M.D., *Treasurer.*

NOTICES.

Physicians visiting the city will be cordially welcomed at the following clinics on the days and hours specified.

BOSTON CITY HOSPITAL.—After January 1, 1915, public operations will be performed in the Surgical Amphitheatre each week, on Thursdays, Fridays and Saturdays, at 10 o'clock.

Thursday: First Surgical Service. Dr. Blake.
Friday. Third Surgical Service. Dr. Nichols, and
Fourth Surgical (G-U) Service, Dr. Thorndike.

Saturday: Second Surgical Service. Dr. Lund.
CARNEY HOSPITAL.—Dr. Bottomley and Dr. Mahoney will hold an operative surgical clinic every Wednesday at 9 A.M., and at the same hour on the same day Dr. W. R. MacAusland will hold an orthopedic clinic. All physicians are welcome to attend.

MASSACHUSETTS GENERAL HOSPITAL.—1. A surgical clinic Tuesday, at 12, in the out-patient amphitheatre. 2. Operations in the Bigelow amphitheatre Saturdays from 10 to 1. 3. Operations in the Surgical Building except Sunday, from 9 to 1. 4. Daily surgical ward visits at which visiting physicians will be welcome. 5. Clinic in medicine and pathology Tuesdays at 12, by Drs. R. C. and H. Cabot and O. Richardson. 6. Medical clinic Thursday at 12, by Dr. D. L. Edsall.

PETER BENT BRIGHAM HOSPITAL.—Physicians visiting the city will always be cordially welcomed at the Peter Bent Brigham Hospital.

The medical visit takes place regularly every morning beginning at 10 o'clock.

Operations are usually going on throughout the forenoon in the surgical amphitheatre.

The surgical clinic is held in the clinical amphitheatre on Wednesdays at 12.30 p.m.

The medical clinic is held in the clinical amphitheatre on Mondays at 12.30 p.m.

The medico-pathological demonstration is held in the clinical amphitheatre on Fridays at 3.30 p.m.

SOCIETY NOTICES.

NEW ENGLAND PEDIATRIC SOCIETY.—The thirty-sixth meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, February 26, 1915, at 8.15 p.m.

1. "Typhoid Fever in Children," Dr. Karlton G. Percy, Boston.

2. "Homogenised Milk. Its Possible Uses in Infant Feeding," Dr. Maynard Ladd, Boston.

3. "Luetic Bursopathy of Vernieuil. Report of a Case. Congenital Type," Dr. William P. Coues, Boston.

4. "Some New Symptoms in Amaurotic Family Idiocy," Dr. Isador E. Coriat, Boston.

Light refreshments will be served after the meeting.

E. M. BUCKINGHAM, M.D., *Pres.*

RICHARD M. SMITH, M.D., *Sec'y.*

THE HARVEY SOCIETY.—The ninth lecture of the series will be given at the New York Academy of Medicine, 17 West 43rd street, on Saturday evening, February 27th, at 8.30 p.m., by Prof. R. R. Bensley, University of Chicago. Subject: "Structure and Relationships of the Islets of Langerhans and Criteria of Histological Control in Experiments on the Pancreas."

APPOINTMENTS.

ARIAL W. GEORGE, M. D., Boston, has been appointed Assistant-Professor of the Department of Roentgenology, at the Tufts College Medical School. Dr. George has also been appointed on the consulting staff of the Carney Hospital.

DR. GEORGE BURGESS MAGRATH has been reappointed medical examiner for the County of Suffolk, Mass.

CORRECTION.

In the schedule of lectures in the School for Health Officers, published in the issue of the JOURNAL for Jan. 28, Dr. Harrington's third lecture on School Hygiene should have been announced for Feb. 24.

RECENT DEATHS.

DR. WILLIAM DUGAN KELLY, of Boston, died on February 9, of septicemia, apparently acquired by infection from a patient with acute tonsillitis. He was born at Lamont, Ill., in 1880, and removed to Boston as a boy, graduated from Boston Latin School and from the Harvard Medical School, receiving the degree of M. D. in 1903. Since 1904 he had served as a school physician for the Board of Health in this city. He was a Fellow of the Massachusetts Medical Society, a member and former president of the Boston Medical Society and a member of the Boston Medical Library. He was a member of the staff of Mt. Sinai Hospital, of the Sunnyside Day Nursery and of the Milk and Baby Hygiene Clinic at the Elizabeth Peabody House. He was unmarried.

DR. AMOS HAGAR PEIRCE, a Fellow of The Massachusetts Medical Society, died at his home in West Newbury, February 9. He was a native of Lincoln Mass., and was a graduate of the Boston University School of Medicine in 1882.

BOOKS AND PAMPHLETS RECEIVED.

The Tuberculosis Problem in Rural Communities by S. Adolphus Knopf, M. D. Reprint No. 243. Public Health Reports.

Index Catalogue Library of the Surgeon General Second Series, Vol. 19. Washington, D. C.

Quain's Anatomy, Eleventh Edition, Vol IV. Part I. Osteology and Arthrology. Longmans, Green & Co., London.

Urinary Analysis and Diagnosis by Louis Heltzmann, M. D. William Wood & Co., 1915.

The Weekly Bulletin, Cincinnati, Jan. 30, 1915.

Impounded Water by H. R. Carter. Reprint No. 244 from Public Health Reports.

Bulletin of the State Board of Health of Maine November, 1914.

Scarlet Fever. Its Prevention and Control by J. W. Schereschewsky. Supplement No. 21, Public Health Reports.

The Boston Medical and Surgical Journal

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Original Articles.

EXPERIMENTAL USE OF MAGNETISM FOR LOCATING NEEDLES IN THE TISSUES. A PRELIMINARY REPORT.*

BY GEORGE H. MONKS, M.D., BOSTON.

IN the days before the x-rays were used for locating needles in the tissues of the body, the surgeon had often little to guide him except such information as was furnished by the history of the case. In the event that a needle, or part of a needle, was said to be in the tissues there was often not even an indication in the skin as to the position of the wound of entrance. Occasionally, to be sure, the needle could be felt through the skin, but such cases were rare. The surgeon could not even be sure, except from the statements of the patient, that the needle was still within the tissues, or that it had been there at all.

The coming of the x-rays has been a blessing in that it gives incontrovertible evidence (1) that the needle is, or is not in the tissues, and (2) that, if buried there, it is in such and such a position, and is in relation to such and such structures. In spite of all this, however, it sometimes happens that the surgeon finds the needle only after a long search, or he does not find it at all. It is quite possible that the x-ray plate has not been correctly interpreted, or that the needle has changed its position. Such being the case, it is obvious that, if any expedient can be found that will give further assistance in the

search for the needle, it may at times be distinctly helpful.

More than a year ago it occurred to me that the surgeon might be aided very materially in his search for a buried needle, if magnetism could be called to his assistance, and since then I have made from time to time a number of experiments to determine if such assistance were possible. After a good deal of experimenting I came to the conclusion that, in order to enable the surgeon successfully to employ magnetism in this way, two things are essential:—

- (1) He must magnetize the needle, or the needle fragment, which is in the tissues, and
- (2) He must locate this needle by means of a magnetized indicator of some kind.

After devising a number of different methods by which both of these requirements could be met, I finally reached the conviction that the simplest way was to magnetize the buried needle by means of a magnet, preferably an electro-magnet, applied as near as possible to the supposed resting place of the needle; and that the best way to find this needle after it had been magnetized was by means of a minute compass, or by the use of a highly magnetized steel needle suspended from a fine silk thread. I also used with success a very fine horse-shoe magnet made from the smallest watch-spring I could find.

I have not as yet had the opportunity of trying this method on the living subject, but, as I have used it successfully under many different conditions, I have a reasonable expectation that it will work with equal satisfaction in actual operative work. I have succeeded in magnetizing a fragment of a needle through glass, wood, felt, and various other substances, of different thicknesses up to one-half inch, and even occasionally

* Received for publication January 30, 1915.

more. I have also on several occasions found a needle through an incision into a piece of meat, the needle having previously been hidden in the meat by another person without my knowing its position.

The procedure is as follows:—

(1) The buried needle is magnetized by passing a magnet over the locality where this needle is supposed to be. The best results are obtained when the long axis of the magnet is in the same line as the axis of the needle.

(2) The examining needle (suspended in the middle from a fine silk thread) is then slowly passed over the same locality.

In the event that it passes over the buried needle.—provided that needle is not too far away from the surface—one end or the other of the examining needle will be attracted and will dip in the direction of the buried needle somewhat in the same manner as the “divining rod” is said to do, when that rod is brought to a place on the ground under which water can be found.

As the buried needle, after it has been magnetized, has two poles (N and S), and as the examining needle has also two poles (N and S), it follows that (according to the physical law, that “like magnetic poles repel one another; unlike poles attract one another”) the N pole of the examining needle is attracted to the S pole of the buried needle, and the S pole of the examining needle is attracted to the N pole of the buried one.

At the earliest opportunity I shall make the effort, in this manner to locate a buried needle, either from the surface of the body or from a wound.

lorus in infants, constriction or pulling out of place of the organs by adhesions between the stomach and the adjacent organs, as adhesions to the gall bladder, or to the caecum, or peritoneum, and rare conditions, as sarcoma of the stomach, syphilitic disease of the stomach tissues, tuberculosis of the stomach.

2. Conditions of functional disturbance of the stomach not due to disease or disturbance elsewhere in the body, as hyperacidity pure and simple, not secondary to ulcer or gall bladder trouble, etc., hypoacidity of the stomach not due to cancer or gastritis, or disease elsewhere, hypomotility of the stomach, not due to constriction of the pylorus or malformation or adhesions.

3. Disturbances of the stomach occurring as associates of general diseased conditions, as typhoid, pneumonia, nephritis, tuberculosis, debility, nerve prostration.

4. Conditions of disturbance of the stomach function or condition, when the symptoms noted by the patient appear to be in the stomach, where the actual disease or disturbance is located elsewhere. To this class belong such conditions as the vomiting of pregnancy, the gastric crises of tabes, the manifestations of gastric symptoms, as distress in the epigastrium, raising of gas, even vomiting, seen in conditions of gall bladder trouble, appendicitis, cancer of the intestine, adhesions involving the intestine, simple constipation, conditions of acidosis, uraemia, liver trouble, mesenteric thrombosis, cases of cerebral tumor, head injury, cases of eye trouble, heart disease, angina pectoris, arteriosclerosis.

In the diagnosis of any case of stomach disturbance, or any case where the patient comes to him complaining of stomach symptoms, the physician must at the start consider in a general way the whole ground described above, in contemplating the possible causation of the stomach symptoms, or adjudged stomach symptoms, present.

The so-called stomach case may be a case of gall stones, or appendicitis, or heart trouble, or syphilis, intestinal adhesions, constipation, nerve debility, or it may be a real case of organic stomach trouble, or of functional stomach trouble.

As first aid in the diagnosis of the case, the physician has the history and record of symptoms as outlined by the patient. Following this is the finding of the general physical examination, the record of auscultation, percussion, palpation, of the blood and urine examination, etc.

In addition to these two features of clinical examination utilized in the study of all cases in medicine, we have in the study of stomach troubles, or of cases with adjudged stomach symptoms, three extra special methods of examination; the examination of the stomach contents as obtained by the use of the stomach tube, the investigation of the stomach by the x-ray

THE STUDY OF DISTURBANCES OF THE STOMACH.

BY H. F. HEWES, M.D., BOSTON.

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THE varieties of conditions included in the general classification of stomach trouble, untoward condition of disturbances of health or comfort in which the patient places the symptoms or most marked symptoms in the stomach, may be divided into four classes:

1. Conditions of actual organic disease of the tissues of the stomach, or anatomical deformities of the organ, or of the organs representing a direct continuation of the stomach, as the esophagus and duodenum. In this class are included ulcer of the stomach, ulcer of the duodenum, cancer of the stomach, gastritis, *i. e.* acute and chronic, atrophy of the stomach cells, actual inflammation of the mucous membrane, cancer of the esophagus, diverticulum of the esophagus, gastroptosis, congenital deformities of the stomach as narrowed or imperforate py-

bismuth method, and the examination of the feces.

By the employment of this full clinical procedure, including all these methods of examination, in his cases with stomach symptoms, the physician should, in the great majority of cases, be able to reach a very definite conclusion in regard to the nature of the disease or disturbance giving rise to the symptoms in the case.

Frequently the utilization of the full method of investigation is not necessary. In many cases the result of the initial method of study, the study of the history record and findings of the general physical examination may suffice entirely for the making of a diagnosis. Thus the definite finding of appendix trouble, or cord syphilis, or angina pectoris, or nephritis, or tuberculosis, may make a special examination by the special methods of stomach investigation unnecessary, the symptoms, even though they appear to be of the stomach, being accounted for by the definite disease discovered elsewhere.

On the other hand, frequently the study of these records may suffice only to rule out certain outside conditions, and the special study of the stomach be necessary for the elucidation of the case.

So that to be equipped for work in the study of stomach cases the physician must be conversant with all these methods of examination, and with the significance of the findings revealed by them, for the interpretation of the case.

The first method of clinical study, the study of the record of the history and symptoms as described by the patient is of course of great value in connection with the diagnosis of stomach cases. Frequently we learn from this alone, if the record is carefully taken, that what appeared to be a stomach case is not that at all, that the pain, etc., described is not in the stomach but in the lower abdomen, that what the patient means by stomach trouble is constipation, or diarrhoea, and so on.

Frequently, on the other hand, this record is so typical that it tells us without further investigation that we have a disease of the stomach and the nature of the disease.

There are certain typical records found in some cases of definite stomach diseases, as ulcer or cancer, which are practically pathognomonic in themselves or nearly so.

Such are, for example, the record of the vomiting of large amounts of blood found in some cases of fresh ulcer of the stomach; the record of accumulation of contents in the stomach with final vomiting of large amounts, found in cases of ulcer or cancer involving the pylorus and causing stasis; the records of continual vomiting combined with great loss of flesh and strength seen in some cases of cancer, and the long histories of intermittent spells of the stomach symptoms of hunger pains, pyrosis, etc., found in some cases of chronic duodenal ulcer.

But in the majority of cases even of organic stomach trouble the record of the history alone

is not diagnostic. Many marked cases of ulcer or cancer have a symptomology of a mild type, much less suggestive of serious trouble than many records of functional stomach trouble, or of stomach trouble secondary to outside conditions as gall stones, appendicitis, syphilis, or nerve debility.

Also these outside conditions may give a picture of stomach symptoms quite as severe in type or of the same type as those recorded above as typical symptomatologies of ulcer and cancer.

On the whole, the history of symptoms, is the least reliable of all methods of investigation for the diagnosis of disturbances with stomach symptoms. I make it a practice never to make a positive diagnosis of stomach trouble, or to advise operation, on a record of a case consisting of the history alone, save possibly in cases with a substantiated record of the vomiting of blood.

To make such a diagnosis we must have some positive clinical finding by physical examination, tube examination, x-ray examination, one or all, as a blood finding, a hypersecretion finding, a stasis finding, a gastritis finding, a tumor, or a positive x-ray picture for the diagnosis of organic stomach trouble, or the absence of abnormality in such findings to rule out organic stomach trouble.

The history record, however, though not absolutely reliable in itself, is of the greatest value taken in connection with the other clinical findings.

And much of its value depends upon the skill of the physician in obtaining from the patient a correct history record, and correct impression from this record. A record which taken in one way reads like a record of stomach trouble, may when taken correctly read as a record of constipation, or gall stones, or renal stone, or heart disease, or nerve debility.

The second method of investigation, the full physical examination, may be of great importance.

It may, in the first place, locate the seat of the disease which is causing stomach symptoms or so-called stomach symptoms, as elsewhere than in the stomach, as for example an appendicitis, or heart trouble, an anaemia, a kidney disease. Often it is necessary according to the nature of the case to supplement the routine physical examination, of inspection, palpation, percussion, urinary and blood examination, with special examination, as a Wassermann test, a test of the spinal fluid, a feces examination, a sputum examination. The meaning of stomach symptoms may appear in a very different light in a case with a positive Wassermann test than in a case without this reaction.

The third method of investigation, the examination of the gastric contents, both the fast-ing contents, and the test meal contents, as obtained by the use of the stomach tube, is of great value in connection with the study of stomach cases.

Frequently in cases of actual organic disease or of definite functional disease of the stomach it gives us an absolute diagnosis. Often by a negative finding it serves to rule out the existence of certain definite stomach diseases.

The routine of this examination consists of:

1. The examination of the fasting contents obtained after a twelve-hour fast.

This contents is inspected or tested as to its quantity, the presence of food residue, the presence of blood, either fresh blood or a chemical blood test, the presence of free HCl and the character of the specimen and its sediment.

2. The examination of the test meal contents, the contents obtained one hour after the ingestion of an Ewald test meal.

This contents is tested for free HCl, and, if this is present, a quantitative estimate of total free HCl is made. If free HCl is absent, an estimate of total acidity and a test for the presence of ferments may be made.

It is not necessary to make this full routine tube examination on all cases, as a part of it, the study of the fasting contents, for example, may make our diagnosis. But it is often necessary to make a full examination.

The findings by tube examination which are of most importance for diagnosis are:

1. A positive blood finding in the fasting contents, fresh blood as noted by inspection or a positive blood test by chemical method. A few shreds of blood may sometimes be obtained in a normal stomach as the result of the action of the tube, but any considerable amount of blood, or a test for blood in a contents showing no fresh blood, is always significant of the existence of some pathological condition of the stomach. It may be esophageal varices; it may be a stomach diseased as part of the disease pernicious anemia or purpura or of alcoholism; it may be ulcer or cancer, but it is always a sign of bleeding, which is pathological. There are the above rare cases of blood in the stomach besides ulcer or cancer, and there are rare cases of bleeding of unexplained cause, but in the great majority of cases where bleeding is present in the stomach it is due to ulcer or cancer or duodenal ulcer, and this blood finding by tube examination is therefore a very important fact in connection with the diagnosis of these conditions.

Certainly we can say that a record of repeated blood findings in the gastric contents is strong suggestive evidence of the presence of ulcer or cancer. The finding is of particular importance when supported by a positive blood finding in the feces.

2. A twelve-hour stasis finding in the fasting contents, a large amount of contents containing food, obtained 12 hours after the ingestion of a meal.

This is pathological and means obstruction of the pylorus by cancer or ulcer, or, rarely, by some other cause as adhesions or tumor outside pressing upon and obstructing the gut.

We may get lesser degrees of hypomotility in functional conditions and rarely in conditions of extreme debility from any disease, intestinal paralysis from peritonitis, total loss of function in moribund conditions in any disease, the phenomenon of a twelve-hour stasis may occur. But otherwise it almost invariably means a cancer or ulcer of the stomach and is a very positive diagnostic finding.

Conditions of less degree of retardation or stomach emptying doubtless occur in atonic stomachs from other causes, ptosis with dilatation, for example. Often we may get a six-hour bismuth stasis in other conditions, but a twelve-hour food stasis means, as stated, organic disease of the stomach.

As between cancer and ulcer as a cause of stasis, other factors of the examination, as the presence of blood, the presence of free HCl, may help discriminate. Stasis simply means one of the two, with the exceptions noted, and the other factors with the history and x-ray examination may help us to determine which.

3. The finding of a fasting contents showing hypersecretion, that is, an abnormal quantity of contents—50 to 100 c. c.—consisting of pure fluid containing free HCl, but no food residue. The quantity of fasting contents in the normal may run as high as 30 c. c. We may get abnormally large amounts of contents in gastric stasis or chronic gastritis, or in hypersecretion. Stasis contents show food, gastritis contents show mucus or a marked cellular sediment. Hypersecretion is simply a large amount of contents of normal character with no food, and not a mucous content like gastritis.

Hypersecretion may be a sign of simple functional hyperacidity of the stomach, a well recognized stomach malady, or it may be an associate of ulcer of the stomach or duodenum or of adhesions to the stomach or duodenum. It is, therefore, simply a sign of an abnormal stomach malady, suggestive, taken with other findings, of ulcer, but often meaning simply a functional hyperacidity.

As a rule a high percentage of free HCl in the test meal contents is associated with it.

4. A finding of a mucous contents or a contents containing many stomach cells in mucus.

This phenomenon is characteristic of the disease chronic gastritis. Chronic gastritis may be an associate of cancer or it may occur by itself. It is common in alcoholism and cirrhosis.

5. A finding of an abnormal cellular sediment in the fasting contents.

This finding is often made in cases of cancer or ulcer. It is, of course, also made in chronic gastritis.

It is not diagnostic but often suggestive with other signs. Normally the sediment of the fasting contents may contain a few cells or many leucocytes—but it does not contain numerous stomach cells (cylindrical epithelial cells). This latter finding is often present with cancer of

the curvature, sometimes with chronic ulcer of the wall.

6. The presence of free HCl in the fasting contents is the rule, but absence of free HCl is not a sign of abnormality, as absence of free HCl in a test meal contents would be. A very high percentage of free HCl is often found in hypersecretion and ulcer cases.

The findings of importance in the test meal contents are as follows:

1. The presence of free HCl.

Normally free HCl is always present in a contents obtained one hour after an Ewald test meal. Absence of free HCl means an abnormal condition. This may be an associate of cancer or chronic gastritis, but it may exist as a purely functional condition. Absence of free HCl is important in connection with a diagnosis of cancer taken with other findings suggestive of cancer, as stasis or a blood finding or a tumor. But alone it has no special significance in this way. Presence of free HCl in a test meal contents is often found with cancer and almost always found with ulcer.

2. The quantitative estimate of free HCl.

In the normal after a test meal the amount of free HCl varies. Its maximum normal is about 0.145%. Amounts above this figure mean hyperacidity. This is found in the condition known as functional hyperchlorhydria. It is found as an associate of ulcer.

3. The tests for ferments may be of importance in determining the existence of the diseases achylia gastrica or atrophy of the stomach. Here we get no free HCl and no ferments. In the average case of hypoauidity the ferments are present.

Tube examination is an indispensable adjunct of the study of conditions of stomach disease. The evidence obtained by this method when of positive character is much more definite as to diagnosis than the evidence obtained by the record of symptoms.

Negative evidence by tube examination does not rule out the existence of organic stomach or duodenal disease. Thus conditions of chronic duodenal ulcer often exist with a normal tube finding. Cancer or ulcer of the stomach may have a normal finding, often a finding which, though abnormal, is not definitely diagnostic of these conditions.

But positive evidence by this method is often absolutely diagnostic and never, like apparently good evidence, supplied by a history record or an x-ray examination, misleading in a positive direction.

The fourth method of examination, the study of the stomach by the x-ray bismuth method, is of great value for the diagnosis of disease of the stomach.

It is particularly useful for the diagnosis of cancer of the stomach or ulcer of the stomach and duodenum. Thus Carmen states that 93% of ventricular cancers under his examination were recognized by x-ray examination, that is,

an x-ray finding suggestive of cancer was found in this percentage of cases of cancer.

In 7% of the cases of cancer the condition was not recognized.

In ulcer of the stomach, 65% of the cases were recognized by x-ray, the remaining 35% not giving definite signs.

In duodenal ulcer 135 cases out of 190 were clearly recognized by x-ray examination.

The methods of study by x-ray bismuth are two in number, the fluoroscopic method and the radiographic method. In any given case either method may give equally definite finding, but of the two the fluoroscopic method is in my experience the more useful.

Evidence of the existence of ulcer or cancer of the stomach or duodenum by x-ray examination appears in three ways:

1. As an abnormality in the outline of the shadow of the stomach and duodenum.

2. As an abnormality in the peristalsis over a portion of the wall of the organs or of the peristalsis of the stomach generally, independently of the site of the lesion.

3. In certain cases, as, for example, those in which the lesion causes some obstruction or interference with the regular expulsion of stomach contents, a third sign may appear, namely, an abnormality in the discharge of bismuth from the stomach or duodenum, showing sometimes, as a stasis of bismuth in these organs for a longer period than normal, sometimes as a more rapid initial emptying of the stomach than normal.

In conditions of chronic ulcer involving the stomach wall in any location above the pylorus, not obstructing this opening, we find in well-marked cases, an absence of peristalsis over a portion of the stomach wall where the lesion is located. Peristalsis comes down to this point, is checked here, skips this portion, or is irregular here, and goes on below it.

In well-marked cases where, for example, the ulcer is a penetrating ulcer or where much contraction of the wall from scar tissue is present, we find also an irregularity in the outline of the stomach corresponding to this area of disturbed peristalsis. Sometimes a crater filled with bismuth can be seen at this point. Sometimes the shadow appears as a diverticulum, a deep invagination or projection of the wall, with sometimes a shadow of bismuth outside the outline of the stomach. In some cases we get an hour-glass shadow evidencing contraction of the wall by ulcer.

In addition to this check in peristalsis or irregularity in outline at the seat of the ulcer, the whole stomach often shows in these cases, a general abnormality in peristalsis, consisting of a very deep and vigorous peristalsis most marked above the seat of the lesion, but extending over the whole stomach.

Often on the wall opposite the seat of the ulcer a marked spasm is seen, a tendency to

tonic contraction at the point, known as an incisura.

In a case of ulcer of the stomach wall above the pylorus all of the above phenomena, *i. e.* local disturbance of peristalsis in a limited area, local irregularity in outline, generally increased peristalsis, incisura opposite the ulcer, may be present.

In other cases some one or two of the signs only may be present, as for example, simply an area of checked peristalsis, or simply an incisura in a portion of the wall suggesting the presence of an ulcer on the opposite wall.

In the cases with many signs or marked signs of abnormality, as, for example, cases with a crater or a diverticulum, or a marked irregularity in outline in a portion of the wall, we consider that we have fairly definite signs of an ulcer, or of an organic lesion, either ulcer or cancer.

It must be emphasized, however, that even such emphatic pictures can be caused by other conditions, as, for example, a condition of adhesions attached to the stomach wall, adhesions from the gall bladder, or peritoneal surface of the abdomen. Adhesions may cause an actual irregularity in the outline of the stomach wall. Often they cause irregularity in peristalsis over a portion of the wall, or general abnormality of peristalsis.

In the cases of the finding of so-called moderate signs of disturbance as, for example, cases showing simply an incisura as an abnormal sign, we feel that the finding may be evidence of an ulcer, but that it is not definitely diagnostic of this lesion, as other causes, adhesions, or reflex spasm from gall bladder trouble, from cord syphilis, or from simple nerve causes, may give this finding.

Ulcer of the stomach wall not at the pylorus may also cause some disturbance in the emptying of the stomach, showing in the presence of stasis of bismuth in the stomach for an abnormal period, a six-hour bismuth stasis, for example, but this finding, though important in connection with other abnormal findings, is not in itself a very definite sign of ulcer. Ulcers of the antrum do often cause pylorospasm as an abnormality. Sometimes, also, there may be as a result of the excessive general peristalsis associated with the ulcer, an abnormally active initial emptying of the stomach.

Ulcer of the stomach wall may be present without showing any abnormal signs by x-ray examination, and, as stated, not infrequently ulcer though showing some abnormality does not show definite enough signs to allow of absolute diagnosis as a result of study of this method. Fresh bleeding ulcers often show no definite signs, also superficial chronic ulcers. Penetrating ulcers, or ulcers causing much contraction of tissue, as a rule show very definite signs of abnormality.

To summarize then, though we cannot always diagnose ulcer of the stomach wall by this

method, even where ulcer exists, and may even find no signs of abnormality in such cases, we can say that the method gives us a means of determining the presence of ulcer in many cases. A negative finding cannot be taken as absolute evidence of the absence of ulcer.

Ulcer of the stomach involving the pylorus gives in practically all cases definite signs of abnormality by x-ray examination. This picture differs in many features from that given by ulcer of the wall in location other than at the pylorus, just described. Here we find:

1. Absence or irregularity of the sphincter.
2. Abnormally deep and vigorous peristalsis of the stomach.
3. Sometimes irregularity of outline in pyloric region.
4. Retention of bismuth in the stomach for a longer period than normal, a nine-hour residue, a twelve-hour residue, a twenty-four-hour residue, according to the amount of obstruction caused by the lesion.

Often no bismuth can be seen entering the duodenum and no duodenal cap is made out. It must be borne in mind, however, that similar findings may be present from other causes, as, for example, cancer of the pylorus, adhesions involving the pylorus or duodenum. Cancer as a rule, does not show the vigorous peristalsis of the stomach seen in ulcer, but it may do so. Otherwise the signs are often the same. Adhesions may give the whole picture as described for ulcer.

The findings by bismuth x-ray examination of duodenal ulcer are as follows:

Ulcer of the duodenum involving the pylorus, or causing obstruction of the pylorus, shows the same signs as ulcer of the stomach involving the pylorus just described.

Ulcer of the duodenal wall located below the pylorus, but not causing actual narrowing of the opening shows, as a rule

1. Irregularity of the duodenal cap.
2. Extra deep and vigorous peristalsis of the stomach.
3. Some retardation in the emptying of the stomach, *i. e.* a six-hour bismuth stasis. Often this is the whole picture of this condition.

In some cases an actual irregularity in the shadow of a portion of the duodenal wall is seen in addition to the general irregularity of the cap—sometimes a crater or diverticulum with bismuth outside the shadow of the duodenum. Sometimes the bismuth appears to remain there and not pass on normally. Sometimes there is marked pylorospasm. Often in duodenal ulcer there is initial hyperactive emptying of the bismuth from the stomach due to the extra stomach peristalsis associated with this condition. Often with duodenal ulcer both below the pylorus or involving the pylorus, the pylorus of the stomach is further to the right than normal.

Duodenal ulcer well below the pylorus may

exist without any abnormal signs by x-ray or without signs which are definitely diagnostic of this lesion. Fresh bleeding ulcer may show no signs; chronic ulcer as a rule shows signs which are at least suggestive.

Adhesions involving the duodenum may give a picture exactly similar in all respects to that considered typical of duodenal ulcer.

Some of the signs, as pylorospasm, a six-hour residue, abnormality in peristalsis, may occur in gall bladder trouble, appendicitis, or in tumors in the abdomen outside of the stomach.

Cancer of the stomach wall located above the pylorus shows by x-ray examination:

1. A portion of the stomach wall where peristalsis is absent or irregular.
2. An actual irregularity in the shadow of the wall, that is, a finding similar in many ways to those found in chronic ulcer of the wall.

In many cases the irregular shadow is of such a character that it is fairly typical of cancer, as distinguished from ulcer. This is, however, not always the case.

The peristalsis of the stomach generally outside of the region affected is as a rule sluggish. In this way the picture of cancer differs from the usual picture seen in ulcer where the peristalsis is apt to be extra vigorous. However, in both cancer and ulcer general peristalsis may be normal. Sometimes in cancer we see actual craters filled with bismuth.

Cancer involving the pylorus shows:

1. Absence or irregularity of the sphincter.
2. Abnormally long retention of bismuth in the stomach, according to the extent of obstruction.
3. Marked irregularity of outline of the stomach shadow at the location of the lesion.
4. Peristalsis of the stomach above is apt to be sluggish as contrasted with that seen in ulcer of the pylorus, but this distinction is not universal. If obstruction is marked no duodenal cap is seen.

The distinctions in the pictures of cancer and ulcer of the stomach both of the curvature and of the pylorus are very clear in some cases, but in others not definite. Where cancer is at all extensive, the irregular shadow is of a very different type than that of ulcer. As stated, peristalsis of the stomach is apt to be more sluggish in cancer.

With cancer at the pylorus the closure is often less absolute and the spasm seen in ulcer lacking.

The findings by x-ray examination seen in connection with the condition of adhesions involving the stomach and duodenum have been to a certain extent described in connection with the description of the findings in ulcer.

As stated, adhesions involving the stomach wall may give absolutely the picture considered typical of ulcer or cancer, viz. an area of absent peristalsis, often an irregularity of outline. In-

cisura may be present. General peristalsis may also be abnormal, showing sometimes increased peristalsis, occasionally sluggish peristalsis. Sometimes the stomach is definitely drawn out of position.

Adhesions involving the duodenum may give every sign of duodenal ulcer, absence or irregularity of the cap, increased and deep peristalsis above, a six-hour bismuth stasis, sometimes absence of sphincter, and a nine-hour stasis.

The exact value of the x-ray method of investigation of the stomach, as a means of diagnosis of stomach disease, cannot at the present time be accurately estimated. This fact can be determined only after a study of a large number of cases in which a record of x-ray examination and of the actual disease present as revealed by operation, or postmortem, or other definite findings, are obtained. The method has at present been under use too short a time to give sufficient data for a final judgment as to its accuracy throughout the whole field of the diagnosis of stomach disease. We can, however, from present knowledge, reach some very definite conclusion in regard to its value for this work.

The x-ray bismuth method of examination is useful for the diagnosis of the following diseases of the stomach and duodenum: ulcer, cancer and adhesions involving the organs. It is also useful for the determination of the size and position of the stomach.

In some cases the x-ray finding is of so definite a type that a diagnosis of the disease, as ulcer or cancer, can be made with assurance from this finding alone. This is true in cases where the lesion is at the pylorus.

In other cases the finding is definite enough for a diagnosis of the existence of one of the three organic stomach lesions described: cancer, or ulcer, or adhesions, but not pathognomonic enough, taken alone, to distinguish which of the three is present.

In the majority of cases in which the x-ray examination gives suggestive evidence of the existence of one of these conditions, however, the finding cannot, even if of a fairly definite type, taken alone, be considered as absolute evidence for the diagnosis of any one of these three separate conditions.

Either we have evidence perhaps fairly diagnostic of the existence of some organic trouble, that is one of the three conditions, but not distinguishing which, or findings which while suggestive of the existence of one of the conditions, are of a type which may be found in conditions other than organic stomach disease.

I have seen conditions of exactly similar findings in cases of cancer and ulcer. I have seen adhesions involving the stomach or duodenum give the exact finding seen in marked cases of ulcer and considered as typical x-ray finding of ulcer. I have seen cancer diagnosed where adhesions were the only pathological finding.

And most of all, I have seen findings similar to those found in proven cases of cancer and of ulcer marked findings considered typical of these conditions, where no organic lesion of the stomach was present, as proven by operation and opening of the stomach.

I have seen sometimes a whole typical picture of, and often some of the signs of, organic stomach disease, as incisura, pylorospasm, a six-hour residue, in gallstone cases, appendix cases, syphilis of the stomach, syphilis of the cord.

The method is of very great value in connection with the diagnosis of the existence of the stomach conditions, but as a rule positive diagnosis of the existence of such conditions should never be made by x-ray examination alone, unconfirmed by other clinical findings, as tube findings, or feces findings, or at least by a very typical history.

This is a point which has been emphasized to most of us by costly experiences. Abnormal x-ray findings, while perhaps more constantly positive, in conditions of ulcer and cancer, that is, more universally present in the whole run of cases, than other clinical findings, as tube findings or feces findings, have the one deleterious feature, that they may be present, where no organic stomach lesion exists. Tube findings, for example, may show no definite abnormality in many cases of gastric ulcer, where x-ray findings give positive evidence, but the former never give definite, so-called diagnostic findings, where no lesion exists.

I call particular attention to this misleading quality of the x-ray method because it is a habit today among many physicians and surgeons to utilize x-ray examination to the exclusion of the more thorough method of investigation, and to abide too much by the x-ray finding or its interpretation in diagnosis.

The value of x-ray examination as a means of excluding by negative findings the presence of organic lesion, cannot be absolutely determined, since we have no way of judging at present exactly how many cases of cancer or ulcer we overlook.

We do know, however, that both cancer and ulcer may be entirely overlooked by the method. This is particularly the case with fresh bleeding ulcers, diagnosis proven by haematemesis, or tube findings, or stool examination, or by later operation, and is undoubtedly true of early stages of cancer. I have seen cases of ulcer showing blood by tube, or blood by feces, later operated upon and found, with negative x-ray findings upon repeated trials. And I have seen cases with symptoms showing a negative finding, return within a year and show a positive finding of cancer both by x-ray and operation findings.

I do, however, take a good deal of satisfaction in the use of the method for probable exclusion of cancer or ulcer in certain cases, as, for example, cases with tube findings of chronic gastritis associated with hypochlorhydria where it is important to determine whether the gastritis

finding is an associate of cancer or not, or cases with hypersecretion and hyperchlorhydria where it is important to determine whether we are dealing with simple hypersecretion or hypersecretion associated with ulcer.

Negative x-ray findings are not absolutely exclusive in such cases, but they are reassuring.

The use of the x-ray method of investigation in the study of stomach cases is not, of course, necessary in all cases, since a positive diagnosis is often made as a result of the study of the other routine methods of examination without resort to this ordinarily more expensive method of investigation. It is necessary in all cases where the findings by the other methods indicate or strongly suggest the presence of some serious pathological process, without giving evidence for positive diagnosis of the condition.

How far we should go in the employment of the x-ray method of study in the investigation of these cases with stomach symptoms not showing any definite evidence of the existence of disease elsewhere, as gall stones, appendix, etc., as a cause of symptoms, and not showing a definite abnormality in the tube finding for diagnosis of stomach disease, is a point which cannot be settled by any general rule. We should like an x-ray examination in all such cases, partly because x-ray examination does in many cases give definite evidence of a pathological process where other methods of examination fail to do so, and partly because, though absence of x-ray findings does not absolutely rule out the presence of cancer or ulcer, it gives us one more argument for excluding these conditions. But under present circumstances we cannot have the desideratum.

(To be continued.)

PLASTIC SURGERY IN PROCIDENTIA, WITH REPORT OF TWENTY-FIVE CASES.*

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As we get some degree of prolapsus in practically all lacerated and over-stretched cases which come to us for repair, we will leave the first degree out of this paper, and consider only the cases of complete or incomplete procidentia, where there is an extrusion of cervix or fundus from the vulvo-vaginal opening with, or without, eversion of the vaginal walls.

Four of my cases occurred in single women with a nulliparous cervix and a stretched, rather than a lacerated, condition of the vaginal outlet. I am thoroughly convinced after a careful study

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of this subject, that the shape and length of the cervix is the most important factor in the great majority of cases, and that this is often accounted for by heredity. Nowhere in the literature can I find the statement that this condition runs in families, which apparently is principally due to the length and shape of the cervix, and contributed to, no doubt, by slender ligaments and perineal muscles.

I have in mind two sisters, both nulliparae, one of them being unmarried, who came to me with a complete procidentia and marked eversion of the vagina. The unmarried sister had a fibroid, which added weight and pressure, and after an abdominal hysterectomy, where the cervix was removed by special request, there was an eversion of the entire vagina, probably partly owing to the fact that I did not fasten the vaginal wall to the round ligaments at the time of the first operation for hysterectomy, and after six months the prolapse recurred suddenly during a fit of coughing. I did a plastic operation, which up to this time is entirely satisfactory. Both these cases were long past the menopause; the second sister, being too old and frail for operation, is able to wear a pessary.

In another of my cases there is a history of a patient's mother and sister having the same trouble, and in still another the patient's mother has "falling of the womb" and two sisters have some trouble. In married women, most of my cases gave a history of normal labors. Several had only one child, and it seemed in their case a cause of one-child sterility, due probably to the posterior position of the uterus. In almost all the cases the uterine canal was longer than normal, often no doubt brought about by increased weight and subsequent stretching and elongation of the supra-vaginal cervix, but many of them, I am firmly convinced, were congenital. We all know that certain mental and physical characteristics may be transmitted by heredity. Why not, then, the shape and strength of the pelvic viscera? The shape of the bony pelvis also varies in patients and its relation to the abdominal axis, causing a vast difference in intra-abdominal pressure. The uterus is a freely movable body, and its relation to the vaginal canal varies, being chiefly regulated by the length and strength of its attachments, especially the anterior, round, and utero-sacral ligaments. Short posterior ligaments predispose to retro-positions, and are an important factor in procidentia. A short anterior lip, in many cases due to a low implantation of the anterior vaginal wall, is apt to maintain its axis in the pelvis by an antelexion. Retrocession may complicate either condition, and gradual descent from intra-abdominal pressure will follow, if it comes on the upper, instead of the posterior, surface of the fundus. Increased weight of the uterus, as in sub-involution or tumors, tends to stretch and weaken the round and broad ligaments, and permit descent. Increased intra-abdominal pres-

sure, from whatever cause, is an important factor, especially if the relation of the axis of the uterus to the pelvis has been changed, so that the pressure is exerted in the direction of the outlet. This varies to a limited degree by a full bladder or rectum, and is aggravated by straining, coughing, and lifting; indeed, the latter are often given in the history as active causes. Overstretching from repeated pregnancies with lacerations of the birth canal is one of the most common causes of procidentia, though the patient may have no discomfort or knowledge of the fact for years, frequently not until after the menopause. We often see severe lacerations of the cervix and perineum with cystocele and rectocele, but if the uterus is in the right axis to the pelvis and vagina, there is at most only a slight degree of prolapse. A generally poor physical condition with a loss of tone and elasticity of muscles is an important predisposing cause of any prolapse, especially if long continued and aided by gravity, and is an important factor in these cases. A fall or strain at this time may cause a sudden stretching of the ligaments, with insufficient elasticity for rebound and replacement, especially if we have a wedge-like cervix with favorable conditions for its rapid elongation, even if not already present by heredity or other causes. You will notice that one of my series occurred in an unmarried woman past the menopause, after a carriage accident. In none of my cases was there a complete tear of the perineum or loss of sphincteric control of the anus. A great majority of them, however, have been constipated, complaining of a lack of expelling force, especially where the abdominal muscles had been overstretched as well.

These patients are usually most uncomfortable, though few of them have severe pain unless they suffer from accompanying hemorrhoids. They complain of a sensation of weight and dragging; many of them have cystitis varying in severity, often due to a pocketing of the bladder, with decomposition of a residual urine; sometimes they are infected with the colon bacillus.

In washing out the bladders of these cases, it is not unusual to catheterize them, and find the argyrol left in the day before. The older patients have usually tried all kinds of pessaries; many of them have had previous repair operations. Their general condition is apt to be poor, and they feel depressed, weak, and discouraged. They often have backache, and sometimes headache and dizziness. Many of them have systolic murmurs, which seem to be due to lack of muscular tone, and may clear up later with rest and tonic treatment. Some of them are fat and bulky; exercise makes them more uncomfortable and they take as little of it as possible. There may be high blood pressure and arteriosclerosis.

Diagnosis. Locally we may find a complete or incomplete extrusion of the uterus, according to the length of the cervix, the degree of laceration

or stretching of the vaginal walls and perineum, and the size of the fundus. If there is much descent, there may be incontinence of urine or leucorrhœal discharge, and we are apt to find erosions or friction sores on the cervix. If the vagina is everted it is usually dry, corrugated, and hard. If partially everted the moist areas may be ulcerated. If there is a large cystocele there is almost certain to be an accompanying cystitis, and it is well to obtain a catheterized specimen of urine. The passage of the catheter may give useful information regarding the presence of stone, pus, or blood, and the direction and length of the urethra. I hear that one of my cases died a year after the plastic operation, from an operation for abscess of the left kidney, and several of them *still* complain of bladder trouble. Fibroids or malignant tumors should be looked for in all cases, both in the fundus, or protruding from the cervix or vulva. In fibroid polypi the question is settled by finding the os externus. Vaginal tumors or a cyst may be present in the incomplete cases, or may exist alone.

Treatment. If aged or tired and depressed, especially if there is any heart lesion, I try to give these patients absolute rest in bed for a few days with a bland nourishing diet, plenty of water, and antiseptic diuretics if necessary. The bowels are thoroughly and regularly moved with cathartics, and if cystitis is present, a daily irrigation of boric acid, or weak permanganate solution if the colon bacillus is present. I then leave about an ounce of a ten per cent. solution of argyrol in the bladder. In all my cases but the first, I used preliminary scopolamine and morphine anesthesia. Either one, one and a half, or two doses, according to the age and blood pressure of the patient, and the judgment of the anesthetist. After the patient has been moved to the operating room she is disturbed, and a little ether may be necessary to begin with, especially if the cervix is to be dilated. I make a routine practice of this, and either use the curette or apply tincture of iodine to the canal, or both. In one patient of sixty-two I found a very tight internal os. Dilatation was followed by a discharge of pus, but as the patient was under the anesthetic I determined to proceed. The result was a moderate infection of the perineum, which rapidly cleared up under treatment, and in no wise affected the result; so I explore every uterine cavity, and always disinfect it with iodine. In cases of low implantation of the anterior vaginal wall one has to be careful not to cut into the bladder; I have seen it as low as the edge of the anterior cervical lip; less care is needed posteriorly. I usually make a circular incision and peel both walls back to the desired length by measurement. Once or twice I have gone through into the peritoneal cavity in a complete case, with no untoward result. I usually tie the lower uterine vessels except in women in the child-bearing period. I then re-

move the denuded cervix, being careful to retain the distal edges with an instrument, otherwise the fundus may disappear from your sight and cause some difficulty and delay in the operation. The vaginal edges are now sewn to the cervical edges with three stitches anteriorly and posteriorly, making a new os. The lateral edges are approximated to each other, being careful not to leave any raw surface, as vaginal adhesions are very liable to form in these cases. I use ordinary chromicized catgut, and leave the middle ends long enough to hold the anterior wall firmly during the operation for cystocele. In my first cases I used the oval denudation, later the triangular, often with some return of the cystocele with both methods. It was in a dissatisfied frame of mind that I went to Chicago and saw Dr. Bertha Van Hoozen do a central flap operation, which she thought was contra-indicated by trachelorrhaphy, but which I have not found to be the case. A straight incision is made in the median line of the cystocele, both flaps are turned back to a pillar of the deep perineal fascia, shown by a white line pointed out by her. The two fascial lines are brought together by interrupted catgut sutures, pushing up the bladder as they are tied, treating it as a hernia. The mucous membrane is now dissected back as far as convenient for easy coaptation, and sewn over the first line of sutures with a continuous catgut stitch. The next consideration is the posterior wall, which often forms a large rectocele. I usually do the Emmet M-shaped denudation, but carry the two angles up as high as possible and attach them to the deep perineal fascia at the sides of the vagina, forming very long arms to the Y when finished. The perineal muscles are brought together and sewn with interrupted stitches of 40-day chromicized catgut. It is essential that these stitches hold for at least two, better three or four, weeks. I seldom remove anything but a few irritating knots during convalescence. Catgut does not cut the skin like silkworm gut. The after-care is easier, is less painful, and does not require removal, a process which is often painful and a source of dread to the patient. If the general condition permits, I remove any hemorrhoids present, but this combination greatly increases the suffering, and it is not my custom to do it unless it is absolutely necessary, especially in the aged.

After-care. I use an ice bag for the first forty-eight hours, with hamamelis or dry gauze on the stitches. Great care is required with regard to the regulation of the bowels and bladder, and irrigation for cleanliness. Where there has been a cystitis I continue my treatment by irrigation and injection into the bladder of a ten per cent. solution of argyrol, with some antiseptic diuretic by mouth. Usually catheterization is necessary. The bladder should be emptied every six or seven hours, oftener if the patient complains of pain. There may be incontinence of urine from the overflow of a full blad-

der, or the patient may squeeze out a few drops from spasm, so in any case use a catheter if there is pain or distention. I have never used a permanent catheter in these cases; it is almost sure to cause an irritation in cystitis in my experience. In two or three of my cases I excised hemorrhoids, and noticed a decided increase of urinary symptoms from this source of nervous irritation and pain. The bowels should be moved in forty-eight hours. I usually give an oil enema just before defecation for the first few days. If there are hemorrhoids, I sometimes mix the oil with lime water, if not, plain or with soapsuds. After peristalsis is well established I find cascara is apt to give painful spasms of the anus, and prefer a milder cathartic. The salines give watery movements and make it harder to keep the perineum clean. Constipation, or a low enema for rapid expulsion, may tear the perineum apart and is to be avoided, especially in the second week when the stitches begin to dissolve. I find that the stronger antiseptics irritate and apparently decrease the vitality of the already depleted tissues, so use nothing stronger than sterile water or boracic acid solution. If the stitches irritate, argyrol gives relief. In some severe cases, a sloughing of parts of the posterior wall or perineum may take place, especially if the stitches have been tied too tightly, or there has been much post-operative edema. If the strong forty-day catgut has been used this has not been serious in my cases, and with care, the after-effect has been quite satisfactory; indeed, one of the best results I have seen was in a case of this kind. After the sloughs came out the tissues closed down into a solid muscular perineum. This patient had a large rectocele the size of a fetal head, and the tissues were thin and much depleted. You must, however, make sure that your fascia holds. I regard the fascial attachment as important as the muscular, there is less strain on it and no elasticity except in the vaginal walls, which give to strain and relax very easily. I formerly kept these patients in bed twenty days. Now I judge according to the case and the age of the patient; at least two weeks is necessary, sometimes three, and if there is any sloughing it may require four. In elderly patients a second operation is often a very serious matter, and no care or pains should be too much for surgeon or nurse. These women are usually veterans of the child-bearing period who have done their duty to state and country, and I feel it a privilege to do my part toward their comfort and restoration to health. They demand our best care in every case; eternal vigilance is their due. Tonics are usually needed during convalescence. The digestion is generally impaired, and careful feeding is sometimes necessary, especially with regard to the gas-producing foods, as starches and sugars. I have seen serious symptoms in one or two of my cases from the pressure of gas on a fatty heart in a stout

and bulky patient. As soon as the patient is up, it is advisable for her to wear some abdominal support, either a belt or front laced corset, as they prefer or the case demands. If not too aged or bulky I find the corset holds up the intestines and decreases the intra-abdominal pressure if worn correctly, having in mind the ptosis which often exists in these cases. In this way it improves the digestion and general health; but if the patient is stout or old, or has never worn corsets, it is a source of irritation to them, and a good fitting belt is better, though not to be worn tightly. In hospital work social service is very valuable, to see that proper hygienic care is given, or followed out. Many of them have a return of cystitis, which could have been prevented or stopped in the early stages. There may be a gradual extension of the infection through the ureters to the kidneys, as in one of my cases. These patients get constipated in spite of all your advice, and by constant straining may bring about more or less return of their original trouble, especially if bloated, or any other cause of increased intra-abdominal pressure exists. When aged their intellect is often not as keen as it used to be, and they need intelligent supervision.

CASE 1. Mrs. L., 69 Widow, American. Operation in May, 1908. This was a case of complete procidentia with erosion of cervix. She was unable to wear a pessary and complained of feeling tired all the time, with numbness of thighs and general lameness. Frequent micturition. Mother of eight children. Widow two years. Menopause twenty years before. After four days' rest in bed with preliminary treatment the operation was performed under ether anesthesia. The internal os was closed, and a gush of pus followed the introduction of the uterine sound. The canal was dilated and disinfected with tincture of iodine. It measured four inches. I removed two inches of the cervix, tying the lower uterine vessels. Oval denudation for large cystocele. Y-shaped colpo-perineorrhaphy. Convalescence interrupted by inflammation of perineal wound, which, however, did not break down and she was discharged in good condition at the end of four weeks. I saw this patient twice, at the end of the first and second years following the operation. She is in good condition, feels well, and perfectly comfortable; she is now 75 years old.

CASE 2. Miss F., 29. Born in N. B. I first saw this patient in April, 1909. She was complaining of attacks of nausea and vomiting, with epigastric pain referred from right side. There was tenderness and rigidity over MacBurney's point. The cervix was long and snout shaped, and protruded from the vulva about half an inch. The uterus was retro-cessed, but easily replacable. She refused operation, so a pessary was fitted and she was referred to another physician for medical treatment. In August of the same year she had an acute attack of appendicitis and was sent to the hospital. After the acute stage had passed the appendix was removed and the uterus suspended with kangaroo tendon by another surgeon. I did not see the patient again for six months, when she returned with the following history: She had felt better till the past

two or three weeks when she developed a cold and cough and now felt as uncomfortable as before the operation. Examination showed an extrusion of the cervix worse than before. The uterus was in the axis of the vagina and there was a separation of the recti muscles. A pessary was worn without much comfort for a year, the patient in the meantime trying to do house work. In June, 1911, the condition getting worse, she consented to further operation. The uterine canal measured four and a half inches. After a thorough dilatation and curettage one and a half inches of the cervix was removed. The abdomen was then opened through the scar, at the same time dissecting it out. No traces of the former suspension were found, and the round, anterior, and broad, ligaments were much relaxed. A Gilliam suspension was done, taking care not to wound the fundus, and the abdomen closed in layers. This girl looked strong and healthy and yet her musculature was very poor; it required much searching to find the two very slender recti muscles. Her convalescence was uninterrupted and she left the hospital in good condition in about three weeks. I hear from her occasionally. She is well and working hard.

CASE 3. Mrs. G., 42, married. Born in Austria. Has had four children and two miscarriages, the last one eighteen months ago. Operated on two years ago for prolapse, with irregular and profuse menstruation. She refused hysterectomy at that time and plastic work was done. Three months later the prolapse recurred and the patient felt no better. I operated on her in September, 1910. Nothing was done to the cervix. An oval denudation was done for the cystocele, followed by a high colpo-perineorrhaphy. Whether flat, or Y-shaped, is not given in the records, and no attachment to the fascia is mentioned. I hear from this patient that she is not well. She has trouble in holding her water and something comes down. She also has some discharge.

CASE 4. Mrs. W., a widow of 60. Operation in September, 1910. Has had five children. The first instrumental, the third craniotomy, no miscarriages. Menopause at 45. History of heavy lifting followed by prolapse two months ago. The cervix was lacerated. Length of canal not given. The cervix was amputated and an oval denudation was done for the cystocele followed by a flap perineorrhaphy. I have heard nothing from this patient.

CASE 5. Miss N., 68. Born in America. Menopause at 50. Operation in March, 1912. First noticed a dragging sensation fifteen months before. Has worn a pessary for the past year. Examination showed a cocoanut-sized tumor, attached to the fundus and freely movable. Cervix long and eroded. Complete procidentia. I did a total hysterectomy, the cervix being removed by request. Convalescence was uninterrupted and the patient was comfortable for about four months when she developed a cough and cold. Suddenly after a fit of coughing the whole vagina came through the outlet in complete eversion. A pessary proved useless and the patient was again operated upon. An oval denudation was made anteriorly and the edges brought together, posteriorly an M-shaped denudation was done, carrying the arms up to the old scar, the middle tongue of vaginal tissue being attached to the deep perineal fascia on both sides. The slender

perineal muscles were dissected out and sewn tightly together with interrupted 40-day catgut, leaving an opening sufficient for drainage and irrigation. She was discharged in three weeks in good condition and is perfectly comfortable since the last operation two and a half years ago.

CASE 6. Mrs. M., 42, married. Born in Prince Edward Island. Sent to the hospital for procidentia. Length of uterine canal not given. High amputation of cervix, oval anterior colporrhaphy, and high Y-shaped perineorrhaphy, attaching the sides to the deep perineal fascia. Discharged in four weeks in good condition. This patient writes that she has some difficulty in holding her water and is suffering from piles.

CASE 7. Mrs. L., 62, married. Born in America. History of one child, no miscarriages. Feels tired, weak and depressed, trace of albumen in the urine; accentuation of second aortic, heart otherwise normal. Examination showed a complete procidentia, with a sharply retroflexed uterus, and long eroded cervix. Operation in May, 1912. Dilatation shows tight contractile internal os with a pus-like discharge; canal four and a quarter inches, disinfected with iodine. A circular incision was made round the cervix, the vaginal walls were dissected up to the peritoneal attachment above the flexion, the lower uterine vessels were tied and the denuded cervix removed. An oval denudation of the cystocele was followed by a long Y-shaped colpo-perineorrhaphy with attachment of fascia. I also removed two hemorrhoids by dissection and continuous suture. This patient had a long and slow convalescence owing to her depressed and nervous condition, but was discharged in good condition at the end of four or five weeks. She had a severe fall the next year, but tells me she is well and perfectly comfortable during the day. She gets up once or twice at night to empty the bladder.

CASE 8. Mrs. S., 53, married. Portuguese. Mother of ten children. Comes for complete procidentia. Operation in June, 1912. Length of uterine canal not given, nor date of menopause. High amputation of cervix, oval anterior colporrhaphy, and long Y-shaped colpo-perineorrhaphy. Discharged in good condition in twenty-two days. This patient's daughter writes to tell me that her mother was perfectly comfortable after the first operation, but that she died two years later following an operation for abscess of the left kidney. Kelly of Baltimore speaks of the great frequency of kidney complications in these cases due to an ascending infection from the cystitis, this, however, is the only one of my cases where I have known it to occur.

CASE 9. Mrs. S., 65, widow. History of one child, no miscarriages. Had a previous plastic operation one year ago. I found a senile uterus with much scar tissue from the previous operation especially on the perineum. A large triangular denudation was made on the anterior wall and sewn with continuous catgut. A long Y-shaped colpo-perineorrhaphy followed, extending the arms of the Y up to the cervical junction, and attaching both sides to the fascia. Discharged in three weeks in good condition. I hear from this patient that she feels well and nothing comes down, but that she has some

trouble in holding her water and is often up several times at night.

CASE 10. Miss N., 32. Born in N. B. Came to see me complaining of backache, bearing-down pain, dysmenorrhoea, and irregular menstruation. Examination showed a prolapse of about two inches of cervix during expulsive efforts; prolapse had been noticed by her for over a year. I operated in February, 1913. The uterine canal measured practically five inches, more than half of which was due to a hypertrophied cervix. I removed two inches of the cervix, after a thorough curettage for endometritis, and made an application of iodine; the uterus was packed anteriorly until the next day, in case of vomiting or straining. Nothing was done to the vaginal walls or perineum. She was discharged in three weeks after a slightly painful menstruation. When I saw this patient a year later she had been practically free from dysmenorrhoea, her periods were regular with less amount, the uterus was anterior, and she had been perfectly comfortable except once after heavy lifting, when there was a sense of weight and fullness for a few days. The ligaments seemed quite able to hold the lighter uterus in good position, though the vaginal walls were somewhat relaxed.

CASE 11. Mrs. G., 40, married. Born in England. Mother of seven children, no miscarriages. History of irregular menstruation for two years. Her general condition was poor, she was stout and bulky, and had a systolic murmur. She was very uncomfortable and often unable to walk. Examination showed a large uterus but no fibroids. Operation in May, 1913. Length of canal not given; much tissue removed by the curette, showing a hyperplastic endometritis. I removed one and a half inches of the cervix, and did an oval denudation of the anterior wall for cystocele, followed by a high Y-shaped colpo-perineorrhaphy. She was discharged three weeks later in good condition. Now she writes to tell me she doesn't feel very well, as she is two or three months pregnant, is constipated, and suffering from incontinence of urine.

CASE 12. Mrs. C., 43, married. Born in N. S. Has had two children, both labors normal. One miscarriage. Comes for irregular and profuse menstruation, prolapse noticed for six months, painful the last two weeks. Has leucorrhoea. Operation in March, 1913. Uterine canal four inches. Considerable tissue removed with curette and canal disinfected with iodine. One and a half inches of cervix removed, nothing done to the anterior wall, Y-shaped colpo-perineorrhaphy. Discharged in three weeks in good condition. I have heard nothing of her since.

CASE 13. Mrs. H., 45, married. Mother of seven children, all normal labors. Two miscarriages, last one six years ago. Operation in March, 1913. Canal four inches. One and a half inches removed, after a curettage and disinfection with iodine. Y-shaped perineorrhaphy. Nothing was done to the anterior vaginal wall, as there was no marked cystocele. She was discharged in twenty-six days in good condition. This patient writes to tell me she is constipated, and the bladder comes down, though she has no difficulty in holding or passing her water.

CASE 14. Mrs. K., 63, widow. Born in N. B. Mother of six children, last one twenty-four years

ago; all normal labors. No miscarriages. Has noticed falling of the womb for two years. Examination showed a complete procidentia with an eroded cervix. The uterine canal measured three and three-quarter inches, fifteen years after the menopause. I removed one and a half inches of eroded cervix, tying off the lower branches of the uterine vessels. I used a triangular shaped denudation on the anterior vaginal wall, and a high Y-shaped perineorrhaphy, attaching the fascia on either side. The patient was discharged after five weeks, according to the records, in fair condition, but she writes to tell me she feels perfectly well, is doing general housework, has no trouble with urination, no discharge and no prolapse. She has, however, a slight lack of sphincteric control of the anus. She is a most happy and appreciative patient, according to her letter.

CASE 15. Mrs. J., 48, married. Born in Sweden. Operation in April, 1913. History of two previous plastic operations nine and one years ago at another hospital. Has had two children, the first an instrumental delivery. Irregular menstruation past two years. Uterine canal measures four inches, cervix small and hard to dilate. Much scar tissue from previous operations. One and a half inches of cervix were removed, the uterus pushed well anterior, and a high Y-shaped colpo-perineorrhaphy done, after dissection of scar tissue. Discharged in twenty-six days, condition recorded as fairly good. I saw this woman a few days ago. The uterus was high in the pelvis and very small; there was no cystocele, but an egg-sized rectocele, starting high above the fascial attachments. A small movable body, apparently a cyst, seems to have prevented the proper healing of the perineal muscles and is still present under the perineal scar. She suffers no discomfort, but is persuaded to try again.

CASE 16. Mrs. J., 60, widow. Menopause seventeen years ago. Has had two children, both normal labors, but torn with the first one, 39 years before. No miscarriages. Has noticed "falling of the womb" for about ten years. Examination shows complete procidentia. General condition poor. Feels weak and tired, and is suffering much pain from hemorrhoids. Has an irregular pulse, and a systolic murmur. After five days' rest in bed with preliminary treatment, the patient was operated upon in April, 1912. The uterine canal measured three and a half inches seventeen years after the menopause, and yet the uterus felt small. I removed the cervix up to the peritoneal attachment, did a triangular anterior colporrhaphy, and a long Y-shaped colpo-perineorrhaphy; I also removed the hemorrhoids at the request of her physician. She was discharged in twenty-four days in good condition, and looked well six weeks later. I hear she continues well, is active, and has perfect comfort. The systolic murmur has disappeared and the pulse has become regular.

CASE 17. Mrs. F., 40, married. American. Menopause three years ago. Has had two children, youngest three, both normal labors. No miscarriages. History of lifting something heavy two and a half years ago; later a bunch appeared at the vulva with pain in the left side and backache. Stout heavy woman with systolic murmur and accentuated second sound of the heart. Operation in April, 1913. Procidentia almost complete. Canal

three and a half inches. Cervix amputated; Y-shaped perineorrhaphy with removal of much scar tissue, also excision of hemorrhoids. Discharged in twenty days in good condition, and I have heard nothing further from her since.

CASE 18. Mrs. C., widow of 71. Born in N. S. Came to the hospital with complete procidentia and eroded cervix. Menopause 31 years ago. She was tired and felt weak, had arteriosclerosis, high blood pressure, and varicose veins of lower limbs. After rest and treatment she was operated upon in April, 1914. Uterine canal measured three and a quarter inches, thirty-one years after the menopause. One and a half to two inches of the cervix were removed, tying the lower branches of the uterine vessels. Straight flap anterior colporrhaphy, high Y-shaped colpo-perineorrhaphy. Discharged in twenty-five days, result not given in the records. She writes to tell me, however, that she feels better than for many years, nothing comes down, she has no trouble with the bladder, but is very constipated.

CASE 19. Mrs. L., 55, widow. Mother of five children, all normal deliveries, though the first was slow and hard. Menopause four years ago. Procidentia past six months. Is now complete. Length of canal not given, but after amputation of the cervix it measured one and three-quarters inches. Operation in April, 1914. Cervix amputated, straight flap operation for cystocele, high Y-shaped colpo-perineorrhaphy. Discharged in twenty-six days in good condition. Patient writes that she is very constipated, and has some trouble in holding her water, but that nothing comes down. She has no discharge, and feels well if she does not overwork.

CASE 20. Mrs. P., 48, married. Born in America. Comes for procidentia, noticed the past year. One child nineteen years old, normal labor. Menstruation irregular for a year. Cervix cystic. Uterine canal three and a half inches. Much tissue removed with curette, showing hyperplastic endometritis. One and a half inches of cervix removed, straight flap operation for cystocele, high Y-shaped colpo-perineorrhaphy. Discharged in twenty-three days in good condition. I hear from this patient that she has felt fine since she recovered from the immediate effects of the operation in April, 1914, and that she has more comfort in standing and walking than for years. She has no trouble with the bladder, no leucorrhea, and is menstruating regularly.

CASE 21. Mrs. L., 58, widow. Born in Russia. Mother of eight children, all normal labors. Two miscarriages, one after last child seventeen years ago. Menopause three years ago. Is short and stout, with a pendulous abdomen. Feels tired all the time, with a dragging sensation of the pelvis, and backache. She also has sciatica. Has noticed prolapse for over a year; bladder trouble on and off for ten years, worse the past three years. Frequent and painful micturition. Examination showed a complete procidentia with eroded cervix. Has been unable to wear a pessary. I did a high amputation of the cervix on this case, tying the lower uterine vessels. A straight flap anterior colporrhaphy was done, and a high Y-shaped colpo-perineorrhaphy, with attachment to the deep fascia. She developed an acute attack of cystitis after the

operation, but quickly recovered under treatment, and was discharged in twenty-three days in good condition. I saw this patient a week or two ago, when she had a slight attack of cystitis, but the mechanical cure was complete. The catheter passed through a straight urethra, there is a good perineum, and no bulging of the vaginal walls.

CASE 22. Mrs. F., 59, married. Born in America. Has had nine children, all normal labors; torn twenty-two years ago with fourth child. Two miscarriages. Comes for "falling of the womb," worse since an attack of bronchitis two years ago. Examination showed complete procidentia, a rectocele the size of a small fetal head, and a moderate sized cystocele. Stout and bulky, with pendulous abdomen. Heart irregular and intermittent; high blood pressure. Complains of feeling weak and tired, with a dragging sensation in the pelvis. Operation in June, 1914. Canal three inches. Many scars holding the uterus, so only about one inch amputated from the cervix, at the same time repairing old lacerations in the vaginal wall. Oval denudation of small cystocele with continuous catgut suture. Large rectocele denuded, puckered, and incorporated into the fascia at the sides of the vagina. High Y-shaped perineorrhaphy. Discharged from the hospital in six and a half weeks. Convalescence interrupted by sloughing of small areas in perineum and posterior vaginal wall, but owing to the 40-day catgut sutures, the muscles and fascia held well, and the end result was good. She also had an acute attack of cystitis after the operation in spite of preliminary treatment. The bladder was capacious and pocketed, argyrol injected one day was often passed in the catheter the following day. I saw this patient about three weeks ago, and she is perfectly comfortable, quite active about her house, and the mechanical result is very good. She has recovered from her sciatica and the cystitis. These patients are a long time in the dorsal position on the operating table, and if there is an old sciatica or lame back, it is quite liable to start up a fresh attack.

CASE 23. Miss C., 50. American. Menopause six years before, after a carriage accident. Has no pain, but a feeling of weight and discomfort in the pelvis. Has noticed prolapse the past six months, with incontinence of urine. No family history of malignancy. Examination showed a complete procidentia. Cervical lips eroded and much thickened, with a small polypus presented at the external os. I did a high amputation of the cervix, opening slightly into the peritoneal cavity. Length of canal three and a half inches, two inches of which were removed. The uterus was pushed anteriorly, and a long posterior colporrhaphy done, extending to the vaginal vault. The overstretched and slender perineal muscles were brought tightly together, and sewn with interrupted 40-day chromicized catgut. Convalescence was uninterrupted, and she was discharged in twenty-two days in good condition. I hear from her occasionally, and she continues well and comfortable.

CASE 24. Mrs. F., 45, married. Born in Ireland. Has had three children, first and last being instrumental deliveries. No miscarriages. Complains of a feeling of weight and dragging in the pelvis, present three years since the birth of her last child, and gradually getting worse. Has dizzy spells. Ex-

amination showed procidentia not quite complete, with a fibrous growth on the posterior cervical lip about the size of a walnut. Canal three and a half inches. Amputation of one inch, after a thorough curettage. Anterior colporrhaphy by a straight flap method, perineorrhaphy by the flap method. Discharged in three weeks in good condition. I have not heard from this patient since she left the hospital two months ago.

CASE 25. Mrs. F., widow. Born in Ireland. Has had two children, first labor instrumental. Menopause fifteen years ago. Sensation of weight and dragging in the pelvis for the past six months. Operation in September, 1914. Complete procidentia past two months. Canal three and a half inches. One inch amputation, anterior colporrhaphy by straight flap method, high Y-shaped colpo-perineorrhaphy. Discharged in twenty-seven days well healed.

Here we have 25 cases to consider which extend over a period of six years. It is noticeable that most of the patients give a history of normal labors, and the one absolute failure was in a case that had been operated on before and the cervix was not amputated either time. I maintain that the removal of the cervical wedge is a very important part of the operation, and I generally find the length of the canal almost double the normal, even in a senile uterus which feels small. We also have to consider the deep perineal fascia which extends from the pubes to the perineal body and ischial spines, with openings for the urethra and vagina. I make use of this fascia in my vaginal work and regard it almost as important as the perineal muscles; where they are atrophied or slender, even more so. I have only used the straight flap method on the anterior wall during the past year. Though it does not stop the cystitis I have not as yet seen any return of the cystocele, and the urethra has been straight in every case to the passage of the catheter. With regard to the bladder symptoms, there has been some return of incontinence in 6 cases, 14 have no further trouble, and 5 have not been heard from. There has been a slight return of cystitis in 2 cases, and 2 have a cystocele which annoys them, though at the time of operation it did not appear necessary to do an anterior colporrhaphy. In one of the cases of incontinence the patient is pregnant, and does not say how she was before she became so. In three cases there is a return of the cystocele after the oval and triangular methods of denudation, and there is some return of the cystocele in two cases where there is no incontinence.

Cystocele of itself then does not necessarily cause incontinence; it is due to lack of sphincteric control. If you pass the dilators into the urethra of these cases you will find them so relaxed that they admit the largest size with slight, if any, resistance, and yet during convalescence they may suffer from retention. After they go home and are more on their feet, the difficulty in holding the water returns, though in

none of the cases has there been complete incontinence afterward. I prefer this method to abdominal fixation or suspension, as in my experience the latter does not cure, unless combined with plastic work. In the aged with a very small fundus, the after-effects are not always comfortable after suspension, due to a dragging on the new anterior ligament, which eventually stretches under intra-abdominal pressure and relaxed outlet, and permits renewed descent. The combined operation is long, and the risk much greater in these patients of lowered vitality, both from sepsis and shock. The few vaginal hysterectomies I have done have not been a cure, unless accompanied by plastic work, even with a vaginal attachment to the round ligaments, and the shock was much greater to the patient. I fail to see any advantage in this, over the high amputation, where eight ligaments have a small piece of fundus to retain, compared to the round and broad ligament attachment to the vaginal walls after hysterectomy, unless there is a question of malignancy or tumor.

Contra-indications. Contra-indications are serious heart and kidney lesions, glycosuria, malignant disease, fibroids, and diseased adnexa. In the patient of child-bearing age, there is no contra-indication if you leave the internal os intact, and allow for involution. I have carefully followed four cases and personally delivered two, where the labor was quick and easy for the first time. One of my patients had borne two previous children with slow hard labors, and the other had given birth to one. Both of them, however, needed extra care afterwards, owing to the tendency to retroversion. I do not tie the lower uterine vessels in these patients, which makes a difference in involution. In the cases of pseudo prolapsus it is not usually necessary to operate on the vaginal walls or perineum if the patient is young, comes to operation in time, and there is no marked retroversion. There must of necessity be a retrocession in these cases, due to the overstretching of the anterior ligaments on account of weight, plus the wedge. If it seems necessary, a retroversion pessary may be worn by the patient for a few months until the tone of the tissue is restored; it will then be found that the ligaments can well take care of the lighter uterus. At first there is involution, followed by a slight broadening of the uterine body. In one of my cases in a young married woman I left a three-inch canal, and three months later the measurement was two and a half inches, so I allow at least half an inch for involution and broadening; more if there is an accompanying endometritis, as the involution will be greater.

Do not in any way decrease the blood supply to the uterus in these cases; they usually need more development. The main thing to guard against is retroversion. When once established, it is often impossible for the patient to wear a pessary to advantage, and some kind of suspension may become necessary. After childbirth the same care is required in all amputated cer-

vices; be on your guard against the increased tendency to retroversion. It has been necessary in two of my cases for the patient to wear a support for the increased weight of the uterus during the first three or four months of pregnancy, until it is well out of the pelvis, on account of the dragging on the already weakened supports of the bladder. In these women there is less question of postoperative shock, but they are often stout, with fat abdominal walls, and a suspension is not always necessary if skilful plastic work is done. The recovery is quicker and there is more subsequent comfort. In some cases a suspension may become a fixation with future trouble for the obstetrician and danger for the patient. Last, but often not least, is the personal dread of some patients to the scar, and they positively refuse anything abdominal on this account.

SOME OBSERVATIONS UPON DIVERTICULUM OF THE BLADDER.*

BY DR. HUGH CABOT, M.D., BOSTON,

Assistant Professor of Genito-Urinary Surgery, Harvard Medical School; Chief of Genito-Urinary Department, Massachusetts General Hospital.

THE subject of diverticulum of the bladder, has, on the whole, attracted less attention, until very recent times, than its importance would justify. Of course, little or nothing was known of these conditions until the routine use of the cystoscope led to their discovery, before such time as they produced recognizable symptoms. There can be no doubt they are a factor of extreme importance because, though they may occasionally exist throughout life without producing important damage to the urinary apparatus, this is the result not at all to be expected, and they are capable of producing an amount of damage which leads to the death of the individual.

Different Types of So-called Diverticula. Some confusion has arisen through failure to separate the different types of pouches or diverticula which are found in the urinary bladder. Thus the small hernial protrusions between the muscular fibres which occur in the subjects of chronic urethral obstruction bear no relation to true diverticula. They are simply the result of weakness of the bladder wall when put under strain; are directly due to the obstruction and lose their importance when that obstruction is removed. The pouch connecting with the vertex of the bladder, due to failure of closure of the urachus, should also be distinguished from the type of diverticula of which I wish to speak here, since it is in and of itself a perfectly definite failure of development, occupies a constant position and is comparatively unimportant in

the surgery of the bladder. The word "diverticulum" should, I think, be confined to those cases of pouches, always of congenital origin, occurring most frequently in certain positions but occasionally seen in almost any portion of the bladder and not due to defective development or lack of closure of any recognized structure. I cannot agree with the view expressed by Chute in a recent paper, that they originate in the little pouches normally seen just above the ureteric orifice, and that they become important only when this pouch is exaggerated as the result of obstructive pressure. My reason for disagreeing lies in the fact that they are so frequently found in individuals in whom obstruction is totally absent, in whom in fact the symptoms of obstruction are due, not to any obstruction, but to the diverticulum. I incline to the view that when found in individuals with urinary obstruction, they are an accidental finding and of no etiological significance. That they are due to some embryonic defect is clear, but I have as yet seen no adequate explanation of their formation beyond the fact that they are associated with peculiarities of the closure of the cloaca, perhaps with a tendency to budding from this structure. It is to be hoped that some of our embryological brethren will produce an adequate explanation.

Congenital Diverticula. These diverticula are covered by the normal coats of the bladder, though the contractility of their muscular fibres is at times certainly defective. The position of election seems to be in the immediate neighborhood of the ureteral openings, and it is to this fact that they owe their greatest potentiality for harm. They are also seen on other portions of the base of the bladder, on the sides and even near the vertex, but those occurring on the upper segment of the bladder can do less damage and are, therefore, less important.

Effects upon the Urinary Apparatus. These effects are largely from two sources: First, those arising from pressure upon the ureter; and second, those arising from the inability of the diverticulum to empty itself completely, and therefore its great liability to infection. The importance of diverticula in the production of hydro-nephrosis has not, I think, been sufficiently emphasized. The frequency with which they occur in relation to the ureter and the tendency of the ureter orifices to lie in the diverticulum or to be drawn into it, at once puts the integrity of the kidney upon that side in jeopardy. The distention of the diverticulum will always put abnormal pressure upon the ureter, and should that structure follow the lower border of the diverticulum (as is not infrequently the case) a valve-like arrangement results which will in time largely or completely obstruct the ureter. I present herewith a specimen of double diverticulum in which this condition has gone on to such an extent as to produce the death of the individual. The history is as follows:

* Read before the American Association of Genito-Urinary Surgeons, in 1912.

CASE 1. March, 1911. H. J. G., 38, wagon maker. Measles and inflammatory rheumatism 20 years ago. Thirteen years ago attack of inflammation of bladder lasting three days, with frequent and painful micturition. Three years ago passed blood following a blow on his side. Eighteen months ago had bloody urine followed by retention after fall on perineum. Habitually constipated. Several attacks amounting to obstipation. Four years ago began to pass large quantities of urine, 14 to 16 pints. Three years ago sugar was found and has been present since. Now passes three to four pints at a time. Comes in for pain in R.L.Q. and in splenic flexure. Fairly developed, thin nervous man. Examination negative except for bladder distended to umbilicus. No sugar found. Bladder drained by catheter, small quantity at a time. Hemorrhagic cystitis resulted. Is most uncomfortable when bladder is distended half way to umbilicus. Remained in hospital one month. Temperature usually normal. Pulse average 96. Towards end of this time patient began to vomit and grow weaker. Bladder was kept empty and urine rarely below 40 ounces a day. He died, with symptoms of uremia.

Pathological Report. Kidneys moderately enlarged and boggy. Renal tissue much thinned. Dilated pelves contain a large amount of rather thin purulent fluid. Ureters much dilated. Right circumference 5cm. Left 6 cm. Bladder wall thickened and trabeculated. In region of opening of right ureter is a diverticulum 4 cm. in diameter, which when distended presses on ureter. In region of left ureter is opening of large diverticulum about 10 cm. in diameter. Opening admits little finger. Opening into left diverticulum is left ureter. Distention of diverticulum occludes left ureter.

Diagnosis. Diverticula of bladder. Cystitis. Pyonephrosis. Broncho-pneumonia, right lung. Obsolete T.B. upper lobe, right lung. Emphysema of lungs. Sero-fibrinous pleuritis, right. Gangrene of tissues of right thorax following saline infusion. Anemia.

In a recent case, a diverticulum of considerable size lay just above the left ureter, which followed its lower margin and opened just at its orifice. In this case distention of the diverticulum produced a valve-like obstruction of the ureter, which was much dilated and thickened. It was very apparent that had this condition been allowed to continue, extensive damage to or destruction of the kidney on that side would have occurred. The history of this case is appended.

CASE 2. May, 1912. M. G., 30, factory. Family and past history negative. For past six months patient has had pain in bladder region with burning micturition. For past two months has occasionally passed blood. Sometimes pain in back. Working or eating heartily seems to make pain worse. O.P.D. record: Bact. report March 26, 1912. Slight growth bacilli. Apr. 6, pig found dead. Too early for diagnosis of T.B. Cystoscopy, J. D. B. Residual, 11 ounces. Bladder irritable. Mucosa red and edematous. Ureters functioning. Jet from right(?) cloudy. Cystoscopy, J. D. B. Residual, 11 ounces. Directly in front of cystoscope to left of mid-line, round opening of congenital diverticulum, with m.m. puckered around opening. Catheter with fine wire inserted into diverticulum. X-ray shows diverticulum.

Physical Examination. Negative. Cystoscopy, Dr. Cabot. O.P.D. Large amount residual. Bladder washes clean without difficulty. Four hundred and fifty c.c. distention. In about position of left ureteral orifice, opening of large diverticulum. Ureter not seen. Cystoscope can be made to enter diverticulum.

Operation. Dr. Cabot. Amph. Ether. Dorsal. Trendelenberg. Bladder washed and distended with boric. Median suprapubic incision. Bladder opened and diverticulum explored with finger. Peritoneum opened and left ureter dissected free and suspended with tape. Peritoneum stripped off bladder. Intestines walled back. With finger in diverticulum this structure was dissected free. No peridiverticular inflammation. Diverticulum opened. Ureteral orifice not seen so ureter opened about three inches from bladder and probe passed through it to bladder. Ureteral orifice located in bladder proper about one-half inch from neck of diverticulum. Diverticulum about size of orange extended downward toward prostate, carrying before it the left ureter. When diverticulum was distended it pressed upon bladder orifice of ureter, tending to close it. Ureter was distinctly hypertrophied and dilated to size of large lead pencil. Diverticulum communicated with bladder by opening which would admit two fingers and appeared to be covered with extensions of all coats of bladder. It was removed at its junction with the bladder and aperture closed with e.g., the mucosa and muscular layer being closed separately. Opening in ureter closed with fine e.g. Sponge count correct. Peritoneal cavity closed. Original opening in bladder closed in two layers. Two large pieces of rubber tissue between peritoneum and bladder. Wound closed to wicks with e.g. and s.w.g. Catheter through urethra.

Excision of diverticulum of bladder. Patient doing well but troubled somewhat by a rather diffuse bronchitis with some pleurisy. Very slight leakage of urine from suprapubic wound due to blocking of catheter. No leakage. Catheter out. Voids O.K. No residual obtained. Wound clean and granulating; strapped. Patient has developed marked phlebitis of whole of left leg. No. T.R. and P. Phlebitis much better. Wound appears solid. Very small granulating area. When dressing was changed today, nearly one ounce of necrotic material came from opening about one-eighth inch in diameter, in site of drainage wick. Opening gently dilated and sinus found to extend for nearly three inches along line of drainage wick. No reaction whatever. Wound again practically dry today.

June, 1913. Came to hospital at request. Scar firm. No urinary symptoms.

April, 1914. Writes in reply to letter that he is perfectly well.

Effects arising from the inability of the diverticulum to empty itself completely and therefore its great liability to infection.

It is not clear whether these diverticula are in their early stages capable of emptying themselves and are, therefore, harmless or whether they are more or less continually the site of residual urine. In the cases that have come under observation, the ability completely to empty themselves has, as a rule, been lost and it is frequently for this reason that they require medical care. Nothing except some other condition

requiring close scrutiny of the bladder would otherwise lead to their discovery. It must be clear that if urine remains in them more or less continually, they are exposed to the same probability of infection as the obstructed bladder. We all of us, I think, believe that urinary retention is one of the commonest, if not the commonest cause of cystitis, and inflammation of a diverticulum must follow substantially the same course. Many of the cases which we have seen have attracted attention because of evidences of urinary infection. Further examination showed that residual urine was present, frequently at an age when obstructing lesions of the prostate do not occur, and the investigation thus started led to their discovery.

The following case is more or less typical of this class:—

CASE 3. October, 1909. L.L., 28, furniture business. Two years ago had an acute urethritis, which was very persistent, involving the prostate and has left him with a cloudy urine. Has been efficiently treated but cloudy urine still remains, though it causes no symptoms.

Seen in August, 1909, with Dr. M. E. P. Fitzgerald. Both vesicles found distended and prostate rather irregular, which was thought to account for his condition. In September seen again and found to have a persistent residual of about five ounces. Operation suggested. An attempt to pass cystoscope in the office was unsuccessful. Condition believed to be one of contracture of the neck of the bladder.

Operation. October 30. Ether. Under an anesthetic, cystoscope passed with some difficulty and shows the opening of a diverticulum on the right lateral wall of the bladder, which will undoubtedly account for cloudy urine. A suprapubic extra-peritoneal cystotomy was done. Orifice of diverticulum found to admit the finger and the sac lay on the right lateral and inferior wall of the bladder. The peritoneum was then stripped off from the right and posterior bladder walls. Peritoneum torn a little at the point of attachment to the urachus. The diverticulum, which had previously been packed with gauze, was readily found at its upper border, and the opening proved to be practically at its highest point. The neck of the diverticulum was divided extraperitoneally and the bladder wall at this point closed with interrupted catgut sutures. The sac thus isolated from the bladder was then freed by blunt dissection and removed. At its lower border it was in contact with the rectum and upper part of the prostate. The ureter, though not seen, was found by passing a ureter catheter to lie upon its lower and outer walls and was not damaged. Bladder wound closed snugly around a medium rubber drainage tube with a Gibson stitch. Abdominal wall closed in layers above and below tube. Protective tissue drain to the right lateral wall of the bladder.

November 2. Drainage has been entirely satisfactory. No leakage around tube until today, when it was removed.

November 7. There has been very little leakage from wound, which is now practically tight. Urine passed freely. There is apparently a little residual urine. Seen in January, 1911. Urine normal. No residual. No symptoms.

THACKERAY'S PHYSICIANS.

By WM. PEARCE COUES, M.D., BOSTON.

NOT the least skilful and clever portrayals of character of the great Victorian novelist pertain to medical men.

Though not the heroes of any of Thackeray's works, physicians have an important place in a few and are mentioned in more than a cursory way in a number of his novels.

Thackeray knew his medicine and medical men of the period well, and all his writings concerning physicians have that inimitable touch, which seems to say, no matter what the subject, "I am master of it." This undoubtedly arises from his attention to detail, and passion for accuracy of description. If he had not known of physicians, he could not have written of them as he did. Of that we may be assured.

In "The Adventures of Philip," a physician is perhaps, next to the hero, the most important character—George Brand Firmin, arch type of the unscrupulous, though clever, society doctor. In his description of this character, Thackeray does not spare the profession, and we know that such types did exist. The portrayal of all the different artifices and subterfuges of this unhappy man is a wonderful example of Thackeray's genius. We have a pen picture of Dr. Firmin as follows:—

"Dr. Firmin's manners were so good, his forehead was so high, his frill so fresh, his hands so white and thin that for some considerable time we ingenuously admired him." We have a picture of him at his club at dinner, choosing a table near a nobleman of vast fortune, though it is draughty and cold. Goodenough, the honest, gruff antithesis of Firmin, cannot conceal his contempt as he watches the other, while he "daintily poured out creaming wine from the ice pail by his side."

At Philip's bar dinner, his father is "called out" by an urgent case, as, Philip groaningly says, always happens. A note is silently presented by the butler, and Dr. Firmin gravely excuses himself—a visit he cannot put off, a friend of high nobility,—he must go.

The elder Firmin meets the fate he well deserves—an execution in his house—he flees to New York, where he draws on his son every now and then, to the latter's chagrin.

In Pendennis we also have Dr. Goodenough, Firmin's antithesis, whose devotion to Pen and skilful care in his illness are graphically described.

Also appears the young surgeon, Huxter, fresh from "Bart's," with dubious hands, writing home of "an interesting case of compound fracture"; the latter is our friend Costigan, with barked shins, the result of too much *spiritus frumenti*, often the case with poor "Cos."

The elder Huxter, the old physician of Clavering, Pen's town, where Fair Oaks is situated, would be much put out at young Huxter's mar-

riage with Pen's former flame, little Fannie Bolton, the portress' daughter, so Lady Rockminster is persuaded to allow him to prescribe for her, and after he has prescribed Spir. ammon. aromat. and Spir. menth. pip. for his august patient, the news is broken to him, and the bitter bolus rendered more palatable by his artful friend Pen, reinforced by Laura Bell, his fiancée.

The immortal Pen's own father was an apothecary and physician, of somewhat humble origin. He started practice in Bath, but was unsuccessful there until Lady Ribstone's drunken chairman cast her through his door, breaking one of Pen's best pink bottles. Pendennis took such good care of her that from that time on his future was assured in Bath and he was a great favorite.

In "Men's Wives" Thackeray gives us a vivid description of Dennis Hagerty, the raw-boned young regimental surgeon who falls an easy victim to the charms of a third-rate boarding house belle. After the consummation of his marriage, nothing will do but that Dennis should resign his commission in the army and return to Ireland with his bride, to New Molloyville, where his old friend, the supposed narrator of the story, comes across him with a numerous progeny. In the meantime, his wife has become afflicted with smallpox and loses her vision, which has tended to make her shrewish temper all the worse. The picture of poor Dennis trying to be cheerful and welcome his guest to his cottage, is indeed a sad and pathetic one. Luckily for him, the virago suddenly leaves him, though Dennis feels the blow bitterly and is constant to the last.

As Dickens is known to have taken Smollett for his master, so Thackeray, to a great extent, took Fielding for his, but we have many touches in his works reminding us of Smollett also. Undoubtedly, Roderick Random suggested Dickens's David Copperfield, and there are reminders in Pendennis and other of Thackeray's works of many instances in "Ferdinand, Count Fathom," and other of Smollett's works. In short, as his great predecessors did, Thackeray used his wonderful powers of analysis of the manners and customs of men, particularly with a view to holding up the sham and the tinsel, and physicians received their share of criticism from his trenchant pen. But this was always tempered with charity and the severe ridicule of physicians, such as is noticeable in Smollett's "Humphry Clinker" and "Ferdinand, Count Fathom" is absent, or at least mitigated to such an extent that it leaves no bitterness. What more touching tribute to the profession can be imagined than Thackeray's lines in Pendennis: "It is not only for the sick man, it is for the sick man's friends that the doctor comes. His presence is often as good for them as for the patient, and they long for him yet more eagerly. How we have all watched for him! What an emotion the

thrill of his carriage wheels in the street and at length at the door has made us feel! How we hang upon his words and what comfort we get from a smile or two, if he can vouchsafe that sunshine to lighten our darkness! Who hasn't seen the mother prying into his face to know if there is any hope for the sick infant that cannot speak and that lies yonder with its little frame battling with fever? Ah, how she looks into his eyes! What thanks if there is light there,—what grief and pain if he cast them down and does not say 'hope.' Or it is the house father who is stricken. The terrified wife looks on while the physician feels his patient's wrist, smothering her agonies, as the children have been called upon to stay their plays and their talk. Over the patient in the fever, the wife expectant, the children unconscious, the Doctor stands as if he were Fate, the dispenser of life and death. He *must* let the patient off this time. The woman prays so for his respite. One can fancy how awful the responsibility must be to a conscientious man; how cruel the thought that he has given the wrong remedy, or that it might have been possible to do better! How harassing the sympathy with the survivors if the case is unfortunate—how immense the delight of victory!"

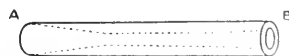
New Instrument.

A WATER-TIGHT URETERAL CATHETER TIP.

By FRANK H. LAHEY, M.D., BOSTON.

AFTER using the ureteral catheter tip as shown in the illustration below, I have given up the old perforated rubber nipples, as supplied by most of the dealers in cystoscopes, because it has been my experience that after a little use they allow of leakage, and even when new that with a strong contraction of the bladder there is often a leakage around them.

The tip as shown in this illustration is made by Eynard of Paris, and was intended not as a ureteral catheter connection for the cystoscope, but as a connection to be used between a syringe and ureteral catheter, so that injections might be made with a syringe not having a tip fine enough to enter the small opening in a ureteral catheter.



As is shown in the figure, it consists of a hollow rubber tube about 16 F. in size, the canal in one end, A, widening out for about one-third of its extent and more abruptly at its end B. The caliber of this tube, as supplied to me by Mr. Charles Bard, Eynard's American represen-

tative, is of sufficient size to fit snugly around a 4, 5 or 6 ureteral catheter. So snugly do they fit that it is impossible to introduce the catheter through it unless it is greased with a little sterile vaseline or some other oily lubricant. If this is done, even a No. 6 catheter may be introduced without difficulty.

The end A, with the longer taper to its canal, is slipped over the tunnel on the cystoscope, and in most cases it is best first to thread the tip onto the catheter for about one inch before slipping it over the catheter canal.

These connections are made of the very best rubber and remain water-tight for a long time.

Reports of Societies.

SECTION ON GENERAL MEDICINE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING OF MONDAY, NOVEMBER 23, 1914, AT 8.15 P.M.

Dr. James E. Talley, in the Chair.

A CASE OF UNDETERMINED CONTINUED FEVER; ITS COURSE AND DESTINATION.

DR. B. F. STAHL AND DR. NORMAN B. GWYN: The case was that of a white woman aged 58 years, admitted to the wards complaining of pain in the lower left axilla. For many years she had been a steady drinker. She had been feeling poorly for about five weeks and occasionally feverish. There was a complete absence of physical signs except a few crepitations in the left axilla. No malarial parasites could be found. Wassermann reactions were negative; tuberculin, weakly positive; sputa repeatedly negative for T. B. The patient ate and slept well. A gradual wasting without pronounced anemia took place. At the end of five weeks there was distinct yellowing of the conjunctiva and enlarged veins coursing up over the thorax and down to the groins. Cirrhosis of the liver was definitely discussed in view of the history of alcoholism. The patient failed rapidly and three days later swelling of the abdomen began and pain in the right side of abdomen became marked. Four days later signs of fluid in the abdomen were distinct. The development of a tubercular peritonitis was considered probable, or of a mechanical peritonitis from a quickly disseminating new growth. At no time in the last ten days of life did it seem likely that operative measures would avail. The autopsy showed atrophic cirrhosis of liver deeply indented, suggesting a syphilitic process. Small area of T. B. in left upper lobe anteriorly placed. Interior of abdominal walls is studded with irregular, small nodules; mesentery studded with small irregular nodules with hemorrhagic tops. Serous coat of intestines has lost its gloss and a fine fibrinous layer is over all; in a good light minute tubercle-like formations are evident in abundance. Lower 8

c. m. of cecum is an immense ulcerating thickened mass. Other ulcerations in intestines evidently tubercular. Sections show condition is tubercular. Tubercle bacilli are found in macerated tubercles from peritoneum.

DISCUSSION.

DR. JOHN K. MITCHELL: I had under my care about four years ago a somewhat similar case in which the fever lasted for six months. Every night during that time, with one or two exceptions, the man had a temperature of from 102 to 103½. The only other symptom was a peculiar sweat. Tests of urine, feces and blood were negative. A number of consultants saw the man,—Dr. Lewis, Dr. Weir Mitchell, Dr. Thayer and Dr. Osler. None threw any light upon the case, except that Dr. Thayer ingeniously suggested psittacosis, tuberculosis in parrots. There were numbers of crystals of uric acid in the sweat, the odor of which was so bad that the man was obliged to get up in the night and take a bath. I sent him to the country and had him sleep out of doors. After two or three weeks the temperature came down and the man recovered in six or seven months without our having made a diagnosis. He is now perfectly well and weighs 190 pounds. The diagnosis is still in abeyance.

DR. ROBERT N. WILLSON: Last year at the Philadelphia Hospital there was a little Porto Rican girl who ran what seemed to us to be a low grade broncho-pneumonia. Then for two or three days she ran a normal temperature. Following that she would have rise of temperature again and then a return to normal. Headache was the only other symptom. This lasted for four months. There was always positive tuberculin reaction to tests, but we could not put our finger upon no focus. Finally the abdomen became greatly distended and we rashly called in the surgeon who operated and there was found in the centre of the abdomen a large caseous tubercular mass. This was removed with a tremendous loss of blood and the child died that night. Up to the day previous to the operation there was no suggestion of an abdominal condition, except a little tenderness over the appendiceal area.

DR. JOSEPH SAILER: I was interested in Dr. Gwyn's case because of the association of tuberculosis and cirrhosis of the liver. In my own experience I cannot say that in cirrhosis of the liver one case out of twelve had tuberculosis. In a case of prolonged fever under my observation some years ago there was also failure to reach a definite diagnosis. All tests were negative. The patient neither wasted nor gained and ran a temperature between 99 and 100, occasionally reaching 101. It was before the days of the Wassermann test. Upon the basis of the possibility of syphilis antisyphilitic remedies were used but without result. Another patient under my care had a temperature every day of 100. In six months' observations nothing very definite appeared. The woman gained about seven pounds upon prolonged rest cure, but did not lose her fever. Prolapse of the uterus was the only definite gynecological symptom. Dr. Clark operated in the hope of gaining more light on the case, when a fairly large solid ovarian tumor was removed. The patient lost her temperature and completely recovered her health.

DR. WILLIAM M. L. COPLIN: One point not accentuated is that in post-mortems we see an un-

usual type of tuberculosis in which caseation or other form of necrosis is slight or absent. The masses on the peritoneum in this case were elevated with hemorrhagic summits, often appearing almost papillomatous; the sand grain surface of miliary tuberculosis is absent. There were one or two ulcers in the intestine typically tuberculous. In many of these irregular forms of tuberculosis it is possible that we may find a tubercle bacillus of an unusual type. There is a fibrosclerotic change in the nodules which is very conspicuous. The appearance is almost that of complete healing with absence of caseation bringing forward the suggestion urged by French writers that there is a fibrogenic toxin produced by the tubercle bacillus differing from the caseogenous toxin commonly so characteristic of tuberculosis.

A CASE OF TYPHOID FEVER COMPLICATED BY ORCHITIS.

DR. S. H. ROSENTHAL: The case was admitted to the Philadelphia General Hospital, October 2, 1914. The patient who was 18 years of age passed through a mild attack of typhoid fever, the temperature became normal on the 13th day. Twelve days later the patient was seized with intense pain in the left lower portion of the abdomen. The temperature went up to 101; pulse rate was 120; leucocyte count 28,000. Distinct rigidity and tenderness were present in this area and the patient vomited twice. The following morning the pain shifted to the left testicle, the abdominal pain subsiding. The testicle and epididymis were found very much swollen and tender and the scrotum inflamed, with tenderness along vas and enlargement of left inguinal glands. The leucocyte count gradually came down to 9,000. Twenty days after the onset of this complication an incision was made in the left testicle and pus found. Typhoid bacilli were obtained in pure culture and were agglutinated by the patient's serum and the serum of another known typhoid case. Patient is still in the ward, the wound draining. There is no history of venereal infection. Orchitis and epididymitis are comparatively rare complications of typhoid fever, the percentage being about 0.2. Only a few more than 100 cases have been reported. Some arise from thrombosis of the spermatic veins; in a few the typhoid bacilli gain access to the epididymis and testicle by way of the vas from the urine, but in the majority of cases the source of infection is in the blood. The complication occurs most frequently between the ages of 15 and 25, appearing late in the disease or in convalescence, lasting from 12 to 18 days and terminating in resolution although induration and atrophy of the testicle or suppuration may occur. In the presence of suppuration there is apt to be extensive sloughing which practically destroys the entire testicle.

SOME OF THE UNUSUAL FEATURES OF TUBERCULOUS MENINGITIS.

DR. THOMAS McCRAE: The report deals with a case of tuberculous meningitis in which symptoms had existed for eight weeks before death. There was a marked variation in the symptoms, the patient's mental condition changing from day to day. The eye symptoms were also variable, paralysis being present one day and gone the next. Retraction of the head and Kernig's sign were not

particularly marked. Lumbar puncture gave a clear fluid with a cell count of 100. Tubercle bacilli were not found. At autopsy only a few tubercles were found on the cerebral meninges and there was little change in the meninges themselves. It seemed rather difficult at first to give an explanation of the symptoms when the autopsy findings were studied. The brain was hardened as a whole and when sectioned three caseous areas were found in the occipital lobes. These contained large numbers of tubercle bacilli. In this case many of the symptoms were apparently due to general toxemia and not to the local tuberculous process in the meninges. The variation in the eye signs seemed most probably to be from edema. The lungs showed a large number of very young miliary tubercles, evidently much younger than those in the meninges. The source of infection was apparently a tuberculous epididymitis.

DISCUSSION.

DR. WILLIAM M. L. COPLIN: The lesions in the gray and white matter of the brain of this case were old with distinct caseation. It is possible that the extension of infection may have occurred from them to the meninges rather than by hematogenous dissemination to the meninges, lungs and other organs. I am reminded of one case in which there was perfectly clear evidence of at least two eruptions of miliary tuberculosis. These were seen in the liver in the presence of definitely healed tubercles, and perfectly fresh granulations with absolutely no evidence of any reparative effort.

DR. JOSEPH SAILER: I recall the report of a case of tubercular meningitis in which after one or two years the patient died of some other condition and in which healed tubercular lesions were found in the meninges.

DR. B. F. STAHL: In a case reported by a colleague some time ago the patient had tubercle bacilli in the spinal fluid, had all the symptoms of meningitis and in addition had tuberculosis of the lungs; and, if I remember the case clearly, he had a cavity. The patient made a surprising recovery from his tubercular meningitis. He was at White Haven for four or six months. I saw the patient four years after he returned to Philadelphia. The development of the disease was entirely arrested and the man is now a timekeeper for one of our contractors.

DR. DAVID RIESMAN: There came under my observation some time ago a woman, stout and healthy looking, whose condition presented continuous fever with intense headache. There was history of two separate attacks of typhoid fever. There was no positive Kernig's sign, but some rigidity of the neck. Lumbar puncture showed the spinal fluid to be almost typical of tuberculosis. Complete recovery took place. The presence of small tuberculous lesions, it seems to me, is very important in the diagnosis of an obscure case which might be tubercular meningitis. I recall the cases of two middle aged women who seemed to have typhoid fever. In the examination of one a little lump was discovered in the back, probably the result of an old Pott's disease. Subsequently all the symptoms of miliary tuberculosis developed and the patient died of that disease. In the second patient the picture was definitely that of typhoid fever. She had also a little enlargement in the back. This together with the headache suggested tubercular

meningitis which the condition was subsequently proved to be. I feel, therefore, that these small lesions, in the intestines, epididymis and in the joints are not infrequently the cause of a miliary tuberculosis or tuberculous meningitis. I would particularly point out that these little remnants of an old and forgotten Pott's disease are very interesting in diagnosis.

DR. ROBERT L. PITFIELD: In a case of meningitis seen in my service to-day lumbar puncture showed tubercle bacilli, diplococci and pneumococci. The edema of the face, choked disc and the fact that the complete coma was not relieved by lumbar puncture led me to think that possibly the cause of the comatose condition was a blocking up of the foramen of Monro and the overflow of fluid into the left ventricle. It occurs to me that this case of Dr. McCrae might be due to an accumulation of fluid as well as to the toxic condition mentioned.

DR. A. P. FRANCINE: I have seen three cases which developed many of the typical features of meningitis which remained for a definite period, and in which the diagnosis was made of tuberculous meningitis in the course of advanced pulmonary tuberculosis. All three cases cleared up without evidence of tuberculous involvement of the meninges or brain. I, therefore, look upon these cases as possibly of nephritic origin or due to toxemia. I am rather skeptical of a tuberculous meningitis that recovers. I have seen such so-called cases recover, but there has been a complete absence of tubercular meningitis.

DR. ALFRED STENGEL: One of two cases occurring to me is that of a woman who has just left University Hospital having been brought in with marked cerebral symptoms and developing soon after a paralysis of her external rectus muscle in one eye with marked diplopia. There was retinitis with swelling of the nerve head four diopters. There were somnolence and various other nervous disturbances not terminating in coma. The condition had begun with apparently acute infection which we eventually discovered to be tuberculous. She remained in the hospital for three or four weeks. While tuberculous meningitis was not demonstrated, its suggestion was very strong and it might possibly have been a case of healed tuberculous meningitis. Dr. deSchweinitz who saw the case with me, recalled to my mind a case we had seen together some years ago in which there were all the symptoms of tuberculous meningitis in a young boy in whom he had found tubercles in the retina. There was complete recovery from the meningeal and retinal conditions. These two cases suggest to me the possibilities of healed tuberculous lesions on the meninges.

THE ABDERHALDEN TEST WITH ITS RELATION TO DISEASE OF THE LIVER.

DR. JOSEPH SAILER AND DR. T. G. SCHNABEL: Breitmenn, having reported the successful application of the Abderhalden test in diagnosing destructive disease of the liver, an effort was made to confirm or disprove his statement. In all 43 cases that were examined the dialyzing method was used. In each case the serum and the substratum were tested separately and if free from dialyzable substances and negative with the ninhydrin test, they were tested together. If, after this a positive ninhydrin test was obtained, the result was considered as posi-

tive. Tests were also made whenever a sufficient amount of serum could be obtained with kidney, thyroid and placenta substratum, and when possible, several tests were made with the liver substratum. It was not possible in all cases to verify the diagnosis by autopsy or operation, but as far as possible, only very definite clinical cases of liver disease were included under that head. The following results were obtained:

Five cases of secondary malignant disease of the liver, all strongly positive.

Two cases of cholelithiasis; one strongly positive, and one faintly positive.

One case of cholecystitis with adhesions and jaundice, moderately positive.

Five cases of atrophic cirrhosis; all probably alcoholic; two were moderately positive; two, very strongly positive and one negative.

Four cases of passive congestion of the liver secondary to cardiorenal disease, all strongly positive.

Two cases put down as enlarged liver, positive.

One case put down as suspected liver disease without definite symptoms, faintly positive.

Three cases of syphilitic cirrhosis with positive Wassermann's, all positive. One of these was positive after the injection of salvarsan.

Two cases of hypertrophic cirrhosis, both positive.

The control with serum of a supposedly normal person gave a very faintly positive reaction with both liver and kidney substratum.

One case of renal insufficiency one week after induced abortion gave a strong reaction with liver, strong reaction with thyroid and intensely strong reaction with placenta.

Another case of supposed puerperal infection gave a strong reaction with placenta, but none with either liver or thyroid.

In a case of suspected pregnancy, afterwards proven not to be, there was no reaction with either tissue.

In two cases of lobar pneumonia the serum of both showed dialyzable substances and gave a positive reaction with ninhydrin.

In one case of myxedema a very faint reaction was obtained with liver substratum but with no others.

In one case of known pregnancy there was no reaction with liver tissue, faint reaction with thyroid, and strong reaction with placenta.

In a case of malaria there was a strong reaction with liver tissue, with kidney tissue, and with thyroid tissue.

Case of multiple serositis there was a faint reaction with liver, thyroid and placenta.

In a case of recurrent alopecia, which had been diagnosed by two other physicians as disturbance of the thyroid gland, there was no reaction with any substratum.

On the whole the results indicated that the reaction was positive in the majority of known cases of liver disease and occasionally positive in cases not known or supposed to have liver disease, and in which the complete demonstration of a normal liver naturally could not be made.

DISCUSSION.

DR. PHILIP L. WILLIAMS: We have used the Abderhalden test at the University Maternity for the last few years. From our experience and from the various reports upon the test it would seem that the underlying principle had not been fully worked

out. For that reason, when one takes up such diverse pathological conditions as are seen in disease of the liver, great caution should be used in reading the results obtained.

DR. DAVID RIESMAN: Results obtained by Drs. Sailer, Schnabel and Williams show that as a biological fact the Abderhalden theory is indisputable. In its clinical application, however, confusion has apparently been wrought by a number of writers who have obtained contradictory results and discredited the theory.

DR. SAILER, closing: Our work was partly undertaken as the result of Breitmänn's investigations. Whether subsequent results will be equally satisfactory it is impossible to tell. It is clear, I think to all clinicians, that diagnosis of liver conditions is in the most unsatisfactory state aside from certain well marked clinical conditions easily recognized. I think it can be said of the very considerable amount of work involved that we have set the subject rather fully before the medical profession, and that the results suggest that under certain conditions the Abderhalden test may in the future have an established value in certain morbid conditions of the liver.

THE DIAGNOSIS BETWEEN PRIMARY AND SECONDARY ACUTE CARDIAC PICTURES.

DR. ROBERT N. WILLSON: It is with a full appreciation of the intimacy of the confidence imposed upon the consultant and of the restrictions limiting the ownership of clinical data acquired in such relation that I venture to sketch briefly four cases seen in conference with medical friends, the study of which and of similar cases has led me to attempt to formulate a working scheme for the discrimination between primary and secondary acute cardiac clinical syndromes. The paper discusses briefly such acute cardiac pictures as appear in neurotic states, in gastrointestinal toxemias, in the pneumonias, in tuberculosis, in hyperthyroidism, in drug intoxications and other systemic embarrassments tending to obscure the real causal factor and to over emphasize the heart. The question asked me in clinic "How does it happen so often that the first signs of a pulmonary tuberculosis are heart or stomach symptoms" graphically defines the aim and the limitations of this study. There are two general conditions in which discrimination is difficult, and two cardinal principles upon which it appears to me rational to base our procedures. The first of the general conditions is exemplified in a patient experiencing cardiac symptoms in the presence of, though not necessarily due to, organic muscular or valvular disease of the heart. The second may be noted in one suffering from a cardiac syndrome in the entire absence of a recognized antecedent lesion, and perhaps in the presence of a heart normal heretofore, and still normal under ordinary circumstances. The first and best method I could suggest would be a deliberate and complete ignoring of the heart in the preliminary, physical examination, and a studied effort to explain doubtful symptoms on other grounds than those of cardiac disease. Failing in this, and forced at length to consider the heart as the *origo et fons mali*, I would propose as the second essential in the diagnosis a still further reluctance to attribute more of importance to the cardiac disease than is its due, and a continual remembrance of the intimacy of the interrelation between the heart and every other of the thoracic and abdominal viscera, also the brain, and the influence

of this interrelation upon the symptoms arising from these organs. The lungs expand from the apex downward and carry the heart downward and the consequent interference with the veno-auricular flow is a far more vital menace than any mere mechanical obstruction in the pulmonary tissue. The bacteremias and toxemias, however, and not the consolidations and congestions are the vital factors threatening the heart. Because of this fact both the myocardium and the gastric mucosa offer their early complaint in tuberculosis and pneumonia, and for the same reason, not infrequently, the cardiac or the gastrointestinal picture dominates the course of the pulmonary disease. Our first step, therefore, is directed toward the exclusion of primary pulmonary disease. Next in the order of important causes of secondary cardiac disabilities is the effect of gastrointestinal toxins. A mechanical factor in the form of tympanitis may further embarrass the involved heart. Not infrequently acute renal or pulmonary conditions are contributory factors. The thyroid and pituitary disorders, the adrenal affections, the grave anemias, acute infectious diseases are to be considered. The point to be emphasized is, that a heart free from antecedent disease, may protest so vigorously concerning its vicarious distress that attention is diverted from the true etiology and treatment invited unavailing and detrimental. The second method of discrimination between the two pictures is the weighing of the influence of a known organic cardiac disease against the symptoms due to incompetency of other organs. All insufficiencies of the lungs, liver, kidneys, or gastrointestinal tract directly dependent upon cardiac disease, are properly a part of the primary cardiac picture.

There must be, however, sharp differentiation between symptoms attributable to an old valvular lesion with its accompanying myocardial degeneration, and lesions of intercurrent infectious pneumonia; between the syndromes of rheumatic endocarditis and myocarditis and the cardiac symptoms of an intercurrent gonorrhea, and distribution of the responsibility of symptoms in the coincidence of persistent influenzal pneumonitis or apical tuberculosis, and "rheumatic" or syphilitic organic cardiac disease. Careful history taking is an absolute essential. Study of the blood pressure, especially with respect to excessive pulse pressure or a cardiac overload, will often avoid the misinterpretation of an organic myocardial disease. We must by every rational endeavor avoid laying upon the heart an etiologic overload in the form of secondary symptoms.

Book Reviews.

Dissection Methods and Guides. By DAVID GREGG METHENY, M.D., L.R.C.P., L.R.C.S. (Edin.), L.F.P.S. (Glas.). Philadelphia and London: W. B. Saunders Company. 1914.

This monograph by a Scottish anatomist is a manual of method and technic in dissection, intended to bridge the gap between the descriptive textbook and the laboratory. It aims to teach the student how to dissect, not what he is to discover by dissection. The work is illustrated with 12 plates representing lines of incision. It is a useful contribution to the pedagogic literature of anatomy.

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THE LABOR CLEAN MILK BILL.

THE Legislative Committee of the State Branch of the American Federation of Labor has introduced at the present session of the Massachusetts Legislature a clean milk bill (Senate No. 78), which is very simple and direct. Expressed in a few words, it seems to cover the most important defect in our milk health laws. The provision that no person shall be prosecuted until he has first had a warning notice, makes it absolutely fair to the handlers of milk and ought to make it satisfactory to them. The bill covers milk produced or handled out of the state to be sold in this state, which after all should be the main object of our protective legislation, both from the point of view of the public health and from that of fair competition for Massachusetts producers.

The Federation has also recommended an appropriation to make the law effective, which we understand will call for \$35,000 "for the inspection of out-of-state dairies whose milk is sold in Massachusetts." This will enable the State De-

partment of Health to maintain ten inspectors on the out-of-state dairies. The plan is to give up the out-of-state inspection by the six dairy inspectors of the City of Boston and have the Commonwealth do this work for all the cities and towns of the state. At present this work is incompletely done, and with few exceptions the only out-of-state inspection is that of the City of Boston. It is not fair financially for Boston to pay for inspection which accrues to the benefit of many other places. Under the new bill the out-of-state inspection will be more complete and will remove the injustice to Boston. In any event, Boston will pay one-third of the cost, as it does in all state expenditures.

The state-wide jurisdiction of the State Department of Health will give it a very great advantage over local boards so far as out-of-state work is concerned.

We recommend that all the various organizations which have been active in support of milk legislation during the last few years should this year give up their own particular bills and support the Labor Clean Milk Bill, in the interest of an early solution of the milk problem. The text of the bill is as follows:—

Section 1. Whoever, himself, or by his agent, shall sell or have in his possession with intent to sell or deliver to any person for purposes of sale within the state, milk, skimmed milk or cream produced or handled inside or outside of the state in insanitary, unclean or unhealthful surroundings, or by insanitary, unclean or unhealthful methods, shall be punished by a fine of not more than three hundred dollars or by imprisonment for not more than thirty days, or by both such fine and imprisonment in the discretion of the court. No person shall be liable to prosecution under this act unless he has first received a warning notice from the state department of health prohibiting him from selling such milk, skimmed milk or cream. The District, Municipal and Police Courts shall have jurisdiction in equity upon the application of the State Department of Health or of a local board of health to enjoin the sale of such milk, skimmed milk or cream."

This bill is a substitute for the more elaborate and comprehensive Ellis Milk Bill which has for several years past been defeated before the legislature and which has been given up by its proponents after consultation with the labor interests. The bill as it stands is endorsed by many local country boards of health. Essentially the same measure without the modifying clauses about notification and jurisdiction in equity is already a law in thirty-five states of the Union,

including the largest. Communications from several of these states show that there has been no difficulty in enforcing the law. A letter from the chief of the division of creameries and dairies in one such state says in part:—

“In the several instances in which it has been necessary to prosecute dairymen for ‘insanitary, unclean or unhealthy methods,’ we have never failed to win a case, except where a jury composed of the friends of defendant rendered a verdict through sympathy. This happened in one or two instances several years ago and the cases were not appealed. Consequently, we have no ruling of the higher courts on these cases. During the past eight years, the few cases which we have brought have been decided in favor of the state on the testimony given by experts in this department. It usually happens that the courts here are in entire sympathy with our procedures, and they have frequently instructed juries to find verdicts in our favor.

“The use of the score card in our dairy inspections aids us very much, as each item of the dairy management is recorded and the inspector is enabled to explain to the court his reasons for allowing a small score on any item contained on the card.”

Though perhaps not ideal, the Labor Clean Milk Bill seems an adequate and desirable measure, and physicians who approve it are urged to write to their senators and representatives in its behalf.

LOCAL CARE OF ADVANCED TUBERCULOSIS.

By the legislative act of 1911 it was required that each town in this Commonwealth of 10,000 inhabitants, or over, must make local provision, either by the building of a dispensary or by arrangement with adjacent towns, for the care of tuberculates among its population. Certain towns and many of the larger cities had already made such provision and others within a short time complied with the requirements of the act. There still remained, however, a number of communities coming within the provisions of this law which have made no such provision or arrangement.

In 1914 an amendment to this law was passed, giving the state health authorities power to establish a standard for such tuberculosis dispensaries, and at that time the following requirements were outlined for these institutions:—

“The tuberculosis dispensaries shall be open in

the daytime during four days in the week, and during one evening in the week, this latter provision to take care of men who have to be at their work during the whole day. There shall be a physician competent to diagnose and to treat both incipient and more advanced cases of tuberculosis. There shall be a nurse, whose duty will be to serve the local cases; and eventually, if not in all cases at first, a social worker, whose business it will be to keep in touch with patients discharged from state sanatoria either cured or with the disease arrested.”

Four years have now passed since the enactment of the original legislation but there still remain eighteen of the thirty-five cities in Massachusetts without tuberculosis hospitals of their own. Most of these cities send some of their patients to other neighboring cities. Of the eighteen cities without tuberculosis hospitals, five have taken no action whatever towards complying with the action, two have merely appointed a committee which has taken no action. In the remainder, apparent intention to comply with the requirement has progressed to varying stages of incomplete accomplishment. These eighteen cities without tuberculosis hospitals are Attleboro, Beverly, Brockton, Chelsea, Everett, Gloucester, Lowell, Malden, Marlboro, Medford, Melrose, Newburyport, Newton, North Adams, Quincy, Revere, Taunton and Woburn. Seventeen large towns are similarly unprovided for. Seventeen of the thirty-five cities in the state either have their own hospital or have made arrangement with a private local hospital. These seventeen cities having suitable tuberculosis facilities are Boston, Cambridge, Chicopee, Fall River, Fitchburg, Haverhill, Holyoke, Lawrence, Lynn, New Bedford, Pittsfield, Salem, Somerville, Springfield, Waltham, Westfield and Worcester. There is one county hospital in Hampshire and a bill (Senate No. 10) is at present pending before the General Court to provide permission for the establishment of a similar hospital in Barnstable County.

It is obvious that there is still a considerable part of the population of this Commonwealth unprovided with proper local accommodation for patients with tuberculosis, and it is urgently desirable that this deficiency should be made good as speedily as may be. Three methods are available by which any community may comply with the provisions of the act. Any city may build and maintain a hospital of its own; or it may arrange by contract with a private hospital for beds and care sufficient to accommodate its indigent advanced cases; or it may combine with

neighboring communities in maintaining a joint hospital sufficient for the care of tuberculates within those communities. It was the original intention of this act to provide thus for the local care of advanced cases, the incipient and curable cases to be taken for more expert sanatorium treatment at the state hospitals. The problem of caring adequately for tuberculosis, of affording the opportunity of cure for those in the early stages, and of protecting the public against advanced cases, which are the principal disseminators of the infection, is one of the most important and one of the largest problems of public health which confronts civilization at the present day. Its solution cannot be expected until every community does its local part in such a well-laid and carefully detailed plan for action.

ANTI-VIVISECTION LEGISLATION.

THE usual annual legislative anti-vivisection agitation is at present being made in behalf of a bill now pending before the Massachusetts General Court forbidding the performance of any animal experiment on dogs. The text of this bill is as follows:—

“Section 1. It shall be unlawful to perform any physical or psychological experiment of a nature causing or likely to cause suffering, pain or disease to any living dog, for any purpose whatsoever, whether with or without anesthetics. This act, however, is not to be construed as interfering in any way with ordinary medical or surgical measures designed to restore to health or relieve from pain the animal under treatment.

“Section 2. Any person performing or assisting or taking part in performing any such experiment on any dog, in violation of this act, shall be punished for the first offence by a fine of not less than \$50 nor more than \$200, and for the second offence shall be punished by imprisonment for not more than one year, or by a fine of not less than \$200, or by both fine and imprisonment.”

A large petition has already been circulated in behalf of this bill, which was presented at a hearing before the committee on legal affairs on February 18.

At this hearing a number of advocates of the measure advanced the usual anti-vivisection arguments, with others based on the present European War, which they attributed to the brutalization of some of the contestants by the

practice of vivisection. Dr. W. B. Cannon, Dr. Theobald Smith, Dr. Langdon Frothingham, Dr. Reid Hunt, Dr. Elliott P. Joslin, Dr. David L. Edsall and Dr. Harvey Cushing appeared as opponents of the measure. Dr. Frothingham pointed out that the bill as it stands would prevent veterinarians from experimenting upon dogs, and Dr. Cushing emphasized the misinterpretation habitually placed by anti-vivisectionists upon the technical reports of animal experiments. Further consideration of the question was deferred to a later meeting of the committee.

It is hardly necessary to call attention to the undesirability of such legislation, which, like all measures of its kind, is inspired by the most humane though mistaken motives and in reality will prevent no avoidable suffering and would seriously hamper legitimate animal experimentation.

IMMIGRATION OF THE INSANE AND MENTALLY DEFECTIVE.

IN another column of this issue of the JOURNAL we publish in full a copy of the statement presented before a hearing given on January 22 on the immigration bill (House 6060), then pending before the National Congress. This statement relative to proposed amendments in this bill, relating to the exclusion and deportation of insane and mentally defective immigrants, was made on behalf of a delegation representing numerous state boards of insanity, the National Committee for Mental Hygiene, and other national and local organizations for psychiatry and mental hygiene. This delegation made clear that its appearance was not in behalf of the illiteracy test, but to point out the importance of provisions relating to the exclusion of insane and mentally defective. The members of the delegation represented that the amendments which they suggested should be included in the bill as measures dealing with administrative matters of public health. Whatever individual opinion may be upon the subject of immigration, it seems clear that the importance of controlling the increase in the number of our alien insane and defective by some such measures as those advocated in this statement should be made the subject of further earnest legislative efforts by the medical profession.

LOCATION OF METALLIC SUBSTANCES IN THE TISSUES.

FOREIGN medical journals have recently contained numerous publications of new radiographic and other methods for locating metallic foreign bodies in the tissues. In another column of this issue of the JOURNAL we publish a leading original article by Dr. Monks presenting a preliminary report of his new and ingenious method of employing magnetism for this purpose. Personal demonstration of this method carries conviction of its feasibility and practical value and we take pleasure in calling the attention of the profession to this new and valuable device of surgical technic.

MEDICAL NOTES

NEW YORK DEATH RATES.—The most noteworthy feature of the mortality during the past week was the great increase in the number of deaths of infants under one year of age, there being 262 deaths recorded at this age group, the increase being confined to the boroughs of Manhattan and The Bronx, and being probably due to an increased mortality among infants from pneumonia and diarrheal diseases. At all ages above five years the mortality was considerably below that of the corresponding week in 1914. There were seven less deaths reported during the past week than in the corresponding week of 1914, and a lower death rate by .62 of a point, which, taking into consideration the increase in population, is equivalent to a decrease of 69 deaths during the week.

Seven weeks have now elapsed since the first of January, 1915, and the death rate for that period is 13.92 per 1000 of the population, which is .67 of a point less than the rate in the corresponding period of the year 1914.

RECEPTION TO GENERAL GORGAS.—Surgeon General Gorgas, of the United States Army, was tendered a reception and banquet at the Hotel McAlpin, New York, on the evening of February 6th, by the New York Division of the Federal Reserve Corps. In addition to the members of the Association, a large number of regular medical officers were present, including Colonels Maus, Richard, Brechemin, and Bradley. Dr. Reynold Webb Wilcox, president of the Association, was toastmaster, and the speakers, other than the guest of the evening, were Colonels Maus and Richard, Drs. John A. Vyeth, George H. Fox, and W. M. Brickner. General Gorgas, in the course of his remarks, stated that the Army has supplies at present to take care of 400,000 men in the field.

CHICAGO TUBERCULOSIS SANATORIUM.—On February 16, the new Chicago Municipal Tuberculosis Sanatorium was formally dedicated with appropriate exercises. It already provides accommodation for 650 patients and will eventually accommodate 950. The buildings have been erected at a cost of \$2,400,000.

BUBONIC PLAGUE IN HAVANA.—Reports from Havana on Feb. 13 and 17 state that three cases of bubonic plague have recently been discovered in that city, all of which have already died. All wharves and houses near the water front have been disinfected and rigorous search for infected rats has been instituted.

EPIZOÖTIC OF FOOT AND MOUTH DISEASE.—Report from Peoria, Ill., on February 10 states that thirty-five new cases of foot and mouth disease have recently been discovered in Peoria County. The infected cattle have been killed and the quarantine of this county has been restored.

On February 2, the Kansas Legislature voted an emergency appropriation of \$20,000 to carry on a campaign against foot and mouth disease in the four counties of that state which are still under federal quarantine.

On February 15, the East Buffalo stockyards were again placed under complete quarantine. On the same date the United States Department of Agriculture extended the quarantine area so as to include all the territory east of the Mississippi and north of Tennessee in a restricted area out of which no shipments of livestock to the south or west will be permitted, except for slaughter within 48 hours. The Department issued the following statement explanatory of this action:—

“The recent discovery of a few cases where cattle, shipped from areas where the disease had existed, carried it to previously uninfected sections, such as four counties in Kansas, convinced the Department that no precautions will make such shipments absolutely safe. The new measure, it is said, should confine the disease to regions in which it has already made its appearance and in which the work of eradicating it will be pushed as before.

“In this restricted territory, livestock may be moved freely to other points within the same territory, but cannot pass beyond the limits of the quarantined area, except for immediate slaughter. The regulations governing the area known respectively as closed, exposed and modified, remain practically the same as before.”

RIBERI PRIZE.—It is announced by the Royal Academy of Medicine at Turin, Italy, that the thirteenth Riberi prize of the value of \$4,000 is offered for the best work of medical research presented before December 31, 1916. Further information may be obtained from Dr. V. Oliva, secretary of the Academy.

INFANT MORTALITY IN AN ENGLISH CITY.—A recently published annual report of the public health officer of Huddersfield, England, records the data of infant mortality in that town for 1913. Huddersfield is a typical manufacturing city with a population of about 111,000, increasing at a rate of about 1% per annum. The density of population is about ten to the acre. The mortality rate from all causes in 1913 was 14.77, which was .71 below the average for the preceding decade. The marriage rate was only 8.35 per thousand and the birth rate only 19.5, a decrease of one-half since 1872 and one-quarter since 1902. In the same year the death rate of Boston was 16.1 and the birth rate 26.17. The infant mortality of Huddersfield in 1913 was 103 per thousand, the average for the 96 largest cities of England and Wales being 117. The most frequent causes of infant death in Huddersfield are prematurity and bronchitis, whereas in Boston diarrheal disease and prematurity rank foremost.

PREVALENCE OF MENINGITIS AND POLIOMYELITIS.—During the month of December, 1914, 39 cases of cerebrospinal meningitis and 7 of poliomyelitis were reported in New York State. During the same month 10 cases of poliomyelitis occurred in Mississippi.

EUROPEAN WAR NOTES.—Report from Venice by way of London on February 13, states that during the first week of February there were 423 cases of typhus fever in Austria and that small-pox is spreading in epidemic form in Vienna.

Report from Washington on February 9 states that the Russian Government has refused to permit an American expedition from Peking, China, to engage in relief work among the German and Austrian prisoners in Siberia. It has, therefore, been decided that a portion of the American supplies furnished by the American Red Cross shall be turned over to Russian military authorities for use in prison camps. Two American physicians have volunteered to go to Siberia with these supplies if the Russian Government grants permission.

Report from Washington on February 12 states that the French foreign office has requested that one of the American Red Cross Units at Pau be transferred to Dunkirk or some other point in the northeast. In view of the number of serious cases now under care at Pau, however, it has been decided by the American Red Cross to authorize the offer of another hospital unit for service in France at Dunkirk or elsewhere, the unit at Pau being retained at its present post.

The weekly bulletin of the United States Public Health Service for February 5 records great activity in plague prevention at Liverpool, England, where much apprehension is felt of the introduction of the plague during the war. Dur-

ing the fortnight ended January 2, 234 rats were killed and examined at Liverpool but none was found to be infected. When certain precautions have been consistently carried out by vessels from the moment of arrival until that of departure, a certificate as to the precautions taken to guard against the introduction of rats on the vessel during its stay at Liverpool is issued.

"The first step taken is to secure a notification of the arrival of a vessel which is, so to speak, a candidate for such a certificate, prior to its reaching the dock. If such a warning is not given which will allow an inspection immediately on the arrival of the vessel no certificate can be obtained, as notifications after the arrival of a ship are not acted upon. All of the regular steamship lines understand this, and no difficulty is experienced in receiving notification in due time to admit of the inspector ascertaining by his own visit to the dock what precautions are instituted. The requirements are: That a vessel be kept at least six feet away from the quay at all times; that rat guards be placed on all lines connected with the ship, and that the said guards shall be of an adequate character; that all lighters alongside the vessel shall be a sufficient distance from the upper part of the ship's first deck to render it impossible for a rat to transverse the intervening space, and that all ropes connecting said lighters shall be properly guarded, or shall be light lines so small as to make their use by a rat impossible.

The inspector visits each ship in port which is held under observation on an average once each day, and at irregular hours, and a record of each visit, with a note as to his findings, is made in a permanent record book.

Just prior to the proposed sailing of a vessel the owners or responsible agents submit a statement in writing as to the steps that have been taken to guard against the entry of rats to the ship. If this statement agrees with the daily record of the inspector it is indorsed by the consular officer issuing the bill of health showing that it is correct, and the same is attached to the bill of health. Indorsement is also made on the bill of health."

On February 19 the total of the New York Belgian Relief Fund amounted to \$932,684.28; the New York Red Cross Fund to \$460,060.47; the American Jewish Relief Fund to \$482,952.13; the American Ambulance Hospital Fund to \$326,870.86; the Committee of Mercy Fund to \$118,804.92; and the Prince of Wales Fund to \$109,893.49.

On February 20 the total of the New England Belgian Relief Fund amounted to \$217,923.93; Massachusetts Red Cross Fund to \$110,098.12; the American Polish Relief Fund to \$22,874.97; the Jewish Relief Fund to \$36,508.21; the British Relief Fund to \$19,916.84; the Lithuanian Relief Fund to \$10,333.49; and the Boston Branch of the American Ambulance Fund to \$54,006.45.

BOSTON AND NEW ENGLAND.

ANGELL MEMORIAL ANIMAL HOSPITAL.—It is announced that the formal dedication of the new Angell Memorial Animal Hospital, of which full description was published in the issue of the JOURNAL for January 21, will take place on Thursday afternoon, February 25, between two and five o'clock.

MASSACHUSETTS SCHOOLMASTERS' CLUB.—At a meeting of the Massachusetts Schoolmasters' Club in Boston on February 12, Dr. Richard C. Abot of this city spoke on the subject of "Health from the School Standpoint," and urged the establishment of school clinics for the education of pupils in practical hygiene. Dr. Thomas F. Harrington, director of the department of hygiene of the Boston public schools, presented a series of results from statistical examinations of Boston school-children and urged that the matter of health in the schools should be regarded as an educational problem. Dr. David Snedden of the Massachusetts state board of education and Dr. Thomas A. Storey, director of the department of hygiene of the College of the City of New York, also spoke in favor of public school health education.

MASSACHUSETTS VITAL STATISTICS IN 1914.—A recent report of the Massachusetts Secretary of State records in preliminary form the vital statistics of this Commonwealth for the year 1914. "The report shows that there were 31,403 marriages and 91,644 births in the state last year, an increase of 505 marriages and 1,762 births over 1913. "Last year 59,564 persons died in Massachusetts, a decrease of 1,122 as compared with 1913. The births in 1913 thus exceeded the deaths by more than 32,000."

FOOT AND MOUTH DISEASE IN NEW ENGLAND.—Simultaneously with the recurrence of foot and mouth disease in several of the Western States, previously noted in this issue of the JOURNAL, there has been a recrudescence of the epizootic of this infection in Massachusetts and other New England States. The outbreak of last fall involved 32 cities and towns and nearly 1,200 cattle of this commonwealth. The present outbreak, which has been in progress since February 1, already involves eight cities and towns and 249 cattle, of which 181 have already been slaughtered. Of the cases thus far reported there have been 10 in Chicopee, 25 in New Braintree, 1 in Oakham, 19 in Southboro, two in Springfield, 82 in Waltham, 22 in Watertown and 65 in Worcester. In Rhode Island new cases have been discovered at Smithfield and Pawtucket. It has not been determined how the infection has been reintroduced into the New England States, but its discovery has been prompt, the machinery for dealing with it ready and the rigorous methods of quarantine and slaughter instituted,

should bring this epizootic to a much speedier end than its predecessor with a minimum destruction of property.

Miscellany.

AMENDMENTS IN THE IMMIGRATION BILL (H. R. 6060) WHICH RELATE TO EXCLUSION AND DEPORTATION OF INSANE AND MENTALLY DEFECTIVE IMMIGRANTS*

THE gentlemen for whom I have the honor to be the spokesman desire to bring to your attention certain provisions in the immigration bill which relate to insane or mentally defective aliens and to state very briefly the reasons for these amendments to the present immigration law. There are no other provisions in this bill which, in our opinion, are of greater importance than these or likely to prove more beneficial to the people of this country if enacted into law.

Those whose views I wish to present are the chief executive officers of boards which have to do with the care of the insane and the mentally defective in the following states: Massachusetts, Rhode Island, New York, New Jersey, Pennsylvania and Maryland. In the public institutions of these six states are to be found nearly three-fourths of all the insane or mentally defective immigrants who are receiving public care in this country. In addition, I desire to speak for the following national or state societies devoted to the study of insanity and mental deficiency, the promotion of the care of those suffering from these conditions, or the prevention of mental diseases; the National Committee for Mental Hygiene, the American Medico-Psychological Association, the American Genetic Association, the Committee of One Hundred on Public Health, the New York Psychiatric Society, the Mental Hygiene Committee of the New York State Charities' Aid Association and the Eugenics Record Office. Properly accredited representatives of each of these State Boards and of each of these societies are in this room. Although what I have to say has the unqualified endorsement of all these gentlemen, each is ready to speak for his own State or for his own organization and to give any specific information which you may desire.

The states whose representatives are here today are literally staggering under the burden of caring for their insane. There are in all public institutions approximately 200,000 insane persons—a number exceeding the number of students enrolled in all the colleges and universities in this country. If all the states had provisions comparable with those existing in the most ad-

* Presented by Dr. Stewart Paton on behalf of a delegation representing State Boards of Insanity and national and local organizations for psychiatry and mental hygiene.

vanced ones, there would be more than 300,000 insane patients in the hospitals today. If there were added those in whom serious mental disease exists but is unrecognized, the number under treatment would reach half a million.

To this great number 60,000 new patients,—an army nearly as large as our regular army—are added every year. The cost of conducting the institutions in which this vast number of persons is cared for is so great that in several states it is exceeded only by the amount expended for education. In New York, the expenditures for the insane are one-fourth of the total annual appropriations of the state. Even with these great sums devoted to the care of the insane of the United States much remains to be done. In many states large numbers of these sick persons are not yet delivered from the misery and degradation of jails and almshouses and in very few states is our duty to the most unfortunate of the community's wards fully discharged. In the case of the mentally defective existing provisions are still more inadequate. It has been estimated by careful students of the subject that only 10% of all the feeble-minded are in suitable institutions. The others are unjustly confined in prisons and reformatories, inadequately cared for in almshouses or at large in the community, often a menace to the morals and to the safety of others and more often themselves the victims of greed or lust. Enlightened states are keenly aware of the importance of solving the great problem of providing for the mentally defective, but the magnitude of the task is such that our legislatures are reluctant to undertake it.

What can be said of the intelligence of a country which, just awakening to this vast problem and just stirring itself to deal with it, fails to take every necessary precaution to prevent the task being rendered still more difficult by a large and steady influx of the insane and the mentally defective of other lands? In requesting that Congress provide us with an immigration law under which the insane and mentally defective can be excluded, we cannot be accused of inhumanity. The gentlemen whom I represent are devoting their lives to the welfare of these persons. They are engaged constantly in the endeavor to render relief to those suffering from mental diseases more effective and more humane than it is at present, but when they see their institutions so over-crowded that patients have to sleep on the floors of wards and corridors, when year after year they see their charges suffer through the reluctance of legislatures to grant the great appropriations needed for proper care and treatment, and when they realize that the beds occupied by aliens could be filled at once by citizens waiting for treatment, can they be blamed for asking for better provisions in the immigration law? Aliens and citizens share alike in this great humanitarian work, but need this half-loaf be divided?

The states which I have named receive their population chiefly through immigration. The number of immigrants who come to New York State to settle permanently every year is greater than the number of babies born. The application, through eugenics, of the facts learned by the scientific study of human heredity will doubtless make it possible in years to come to cut off defective strains so that fewer babies who have inherited the mental defect of their parents will be born, but how weak are efforts in this direction compared with the enormous need! It is in the elimination of the insane and the mentally defective from the great tide which flows through Ellis Island that the most practical and humane field for the control of insanity and feeble-mindedness in this country is to be found.

It may be said that the present immigration law excludes the insane and mentally defective. In reply I have only to say that, under the present immigration law, our public institutions have been filled with the alien insane. There are serious defects in the immigration law and these defects have long been recognized not only by those who care for the alien insane and mentally defective in the public institutions of this country but by the medical authorities actually engaged in the examination of immigrants at our ports of entry. The amendments which I will read are endorsed not only by the state boards and medical organizations which are represented here today but by every national medical organization which is interested in psychiatry and by more than twenty state and local medical organizations.

They were framed with the constant guidance of experienced medical officers of the government service, who had discovered the inadequacies of the present immigration law in their daily work at Ellis Island. Together we have urged them upon the attention of Congress and the only opposition which they have received from any source has been from those steamship companies which are willing to bring to this country an unfortunate immigrant who can be persuaded to come and who can get through one of the convenient loop-holes in the present law.

Listed in the order of their importance, these are the amendments which we desire to advocate

1. Providing that medical officers of the United States Public Health Service who have had special training in the diagnosis of insanity and mental deficiency shall be detailed for duty at ports of entry designated by the Secretary of Labor and that the services of interpreters and suitable facilities for making mental examinations and observing cases shall be provided for these medical officers.

2. Providing that the surgeon of each vessel shall make a mental examination of each immigrant before accepting him for passage. (A physical examination only is required at present)

3. Providing a fine of \$200 for bringing to this country any insane or mentally defective

person whose condition could have been detected by a competent medical examination at the time of embarkation.

4. Adding constitutional psychopathic inferiority and chronic alcoholism to the excludable causes.

5. Making it mandatory for the Secretary of Labor to provide suitable attendants for immigrants being deported, when they require personal care on account of mental or physical disability.

6. Increasing from three to five years the period in which deportation of aliens who have become a public charge in this country can be effected—unless it can be affirmatively shown that their dependence is due to causes arising subsequent to landing.

7. Providing that deportation can be effected subsequently if proceedings are *instituted* within five years.

We advocate these amendments as medical men trained in the department of medicine which has to do with mental diseases. In our opinion, these provisions in the bill before you overshadow all others in importance and we especially desire to state that we are here solely for the purpose of presenting the reasons for their inclusion in the immigration law. Although other provisions in the law may be desirable and some may be inadvisable, we wish to confine ourselves strictly to those matters regarding which we have special knowledge. The amendments which we advocate deal with complex problems in a highly specialized branch of science and we have felt that the views of men who are devoting themselves to this work might be of value to you in forming an opinion as to the need of the amendments which I have read and as to the results likely to be gained by their adoption.

EARLY HISTORY AND SUPPRESSION OF THE OPIUM TRAFFIC.

REPORT from The Hague by way of London states that on February 12 the protocol of the anti-opium convention of 1912, at which 44 nations were represented, was signed by the delegates of the United States, China and the Netherlands. This convention aims at the suppression of the opium traffic and the illicit international traffic in cocaine and other habit-forming drugs; and its signature by these three representatives brings it automatically in force in the three respective countries having an approximate population of about 475,000,000 persons. Mr. Henry VanDyke who, as American Minister to the Netherlands, represented the United States as a signatory, made the following statement with reference to the convention:—

"The opium convention aims at putting a stop to the vicious trade in opium as an intoxi-

cant and at imposing the strictest regulation on the legitimate commerce in opium for purely medicinal purposes. I hope that the three nations which have taken the first definite step in this direction soon will be followed by many others. It is a great satisfaction that China, which has suffered most from the opium vice, has taken this step side by side with the United States, which is the foremost nation in adopting legislation against this vicious trade, and that Holland, with her immense possessions in the East Indies, should take the same stand."

The *Journal of the American Medical Association* for February 6 contains an important leading article by Dr. Macht on the early history of opium and some of its preparations and alkaloids, from which the following extracts are of particular interest in connection with the signature of this convention:—

"The medicinal properties of poppy juice date from a remote period. Recalling the highly developed culture of the ancient Egyptians one is inclined to imagine that the narcotic properties of opium were known to them; but the investigations of Unger (1857) have failed to trace any acquaintance with opium in Ancient Egypt, and Dr. Ember, of the Semitic Department of Johns Hopkins University, knows of no reference to it in Egyptian literature. According to some Hebrew scholars, there is a reference to poppy juice in the Bible. In several passages in the Old Testament the word *rôsh* is mentioned. Professor Haupt is convinced that *rôsh* means poppy, and so also is Professor Post. In the Talmud we have one reference to opium, under the name *ophion*, but that word was clearly borrowed from Greek. In the classical Hindoo literature there is found no reference to it. From the time of the Mogul Conquest on there appears a word *Khash-khash* which means poppy-seed, and *Khash-khasharasa*, juice of the poppy. In this it is easy to recognize our modern word *hashish*; and so it seems that at that early date the narcotics opium and cannabis indica were confused with each other. The original home of the poppy was in Asia Minor. From there it was carried to Greece at a later period.

"It is not at all certain whether Hippocrates was acquainted with the juice of the poppy. According to Wootton, he refers to a substance called *mecon* to which he attributes a purgative as well as a narcotic action. Some think that it was opium; others believe that he was referring to another plant. In any case, he made but very little use of the drug. The first authentic reference to the milky juice of the poppy we find by Theophrastus at the beginning of the third century B. C., when he speaks of it as meconion. Scribonius Largus, in his 'Compositiones Medicamentorum,' about the year 40 of the present era, describes the method of procuring opium from the capsules of the poppy, and about the year 77 of the same century Dioscorides makes a distinction between the juice of the capsules and the extract of the whole plant. He describes

the method of incising the capsules, and refers to adulterations of the drug with the milky juices of other plants so that it is evident that the collection of opium was quite an industry in Asia Minor at that time. Pliny devotes some space to a description of opium and its medicinal use, and the drug is mentioned repeatedly by Celsus in the first century and by numerous other Latin writers. Galen spoke enthusiastically of the virtues of opium confections, and the drug was soon so popular in Rome that it fell into the hands of shopkeepers and itinerant quacks.

"The introduction of the drug to the natives of the East was through the Arabs, and in the first instance to Persia. Its introduction to India seems to have been connected with the spread of Mohammedanism.

"The Arabic physicians used opium very extensively, and even wrote special treatises on some of its preparations. The earliest mention of opium as a product of India is by the traveler Barbosa, in 1511. A Portuguese historian, Pyres, in a letter to Manuel, King of Portugal, in 1516, speaks of the opium of Egypt and Bengal.

"Opium is supposed to have been brought to China first by the Arabs, who are known to have traded with the southern parts of the empire as early as the ninth century. Later the Chinese began to import the drug in their junks from India. It was not before the second half of the eighteenth century that the importation of opium began to increase rapidly through the hands of the Portuguese, and a little later through the famous East India Company. In 1770 the English established an opium depot in Lark's Bay, south of Macao, and the traffic rapidly increased, so that very soon the Chinese authorities began to complain, and in 1820 an edict was issued forbidding any vessel having opium on board to enter the Canton River. A system of contraband followed, then political friction between England and China, and the so-called Opium War, which culminated in the Treaty of Nanking (1842) by which five ports of China were opened to foreign trade, and in 1858 opium was admitted as a legal article of commerce. By that time the vice of opium-smoking had spread like a plague over the gigantic empire, and became so deeply rooted that, in spite of innumerable edicts and decrees, all efforts to check its growth have been powerless."

NAVAL SURGERY A CENTURY AGO.

IN a recent issue of the *British Medical Journal* are quoted abstracts from articles published in the July and October parts of the *Edinburgh Medical and Surgical Journal** for 1814, representing some experiences of naval surgery dur-

* *Edinburgh Medical and Surgical Journal*, Vol. x, pp. 265, 295, 311, 317, 325, 403, 419, 451, 453.

ing the close of the Napoleonic era a century ago:—

"There are three cases of gunshot wounds of the thorax, with annotations, by Joseph Arnold, M.D., surgeon, H. M. S. *Alcmene*. There is a fatal case of hydrothorax, with appearances on dissection, by Mr. Archibald Robertson, surgeon of H.M. S. *Cydnus*; there is the letter from Joseph D. A. Gilpin, M.D., inspector of army hospitals at Gibraltar, to Colin Chisholm, M.D., F.R.S., etc., on the fever which occurred at Gibraltar in 1813; and there are letters from Dr. Chisholm on yellow fever, and answers by D. Bancroft, written with some degree of heat; there is a report on the use of charcoal powders as a substitute for cinchona by R. Calvert, physician to the forces; there is a case of hemiplegia in a soldier in His Majesty's West India Regiment, treated with tinctura lyttæ (cantharides) and cold shower-bath, by Robert Hartte, surgeon to the forces; there are observations on pemphigus (in Russian sailors) by Dr. Dickson, physician and inspector of the fleet, etc., on the North American Station; and there are observations on the use of ipecacuanha and opium in dysentery, by Mr. William English, surgeon. In all these articles military matters are prominent; in fact, the atmosphere is that of war—war with its traumatisms and its subsequent plagues, pestilences, and famine diseases; war *matribus destituta*, but ameliorated, and with some of its worst sufferings mitigated by medical knowledge and surgical skill.

"Of Dr. Arnold's cases the second† was interesting, both from its medical and its general aspects. The wounded man was Christofolo Rodomere, a Venetian, rich in goods, and the owner of a vessel bound in May, 1812, from Venice to Bocca di Cattaro, passing therefore from Napoleon's 'Kingdom of Italy' to the Province of Illyria. Unfortunately for the vessel and for Rodomere, who was on board, one of His Britannic Majesty's frigates, cruising up and down in the Adriatic with her sailors on the look-out, sighted the Venetian. To be seen meant to be captured, 'not before her crew,' adds Dr. Arnold, with evident regret, 'which consisted of about a dozen persons, had killed or wounded twenty-seven of the frigate's men.' The frigate, one may judge, pretty nearly caught a Tartar on this occasion. Poor Rodomere, in a desperately wounded condition, was handed over to the surgeon, and he found that whilst his left thumb was badly shattered and his left side from hip to ribs was much bruised, a leaden ball had also entered near the tenth rib, three finger-breadths from the spine, and had come out about an inch below the nipple of the left breast. When he received the wounds he fell and spat up blood by coughing, 'but after this he became quiet, his pulse was moderate, his breathing free, and he did not complain of pain.' This happened on

† *Edinburgh Medical and Surgical Journal*, Vol. x, p. 274, 1814.

the night of May 22nd. He took three laxative pills, had cataplasms applied to his thumb and to the wound in the side, and saturnine lotion to the anterior wound. For the next few days he went on nicely; but on May 30th the anterior wound began to be tender, and a full inspiration gave pain, and Dr. Arnold was led to take stronger measures. These, in the Latin tongue, into which the surgeon was wont to diverge on such occasions, were as follows: 'Fluat ex templo sanguis ad 5xx; capt. etiam pilulas laxantes tres; pergat in usu cataplasmatum et aliorum.' On the next day he was worse, so Dr. Arnold again took steps: 'Iterum fluat sanguis ad 5xx; bibat ad voluntatem aquam succo limonum gratam redditam; sumat pilulas laxantes duas,' and so on. The patient got no better; indeed, on June 1st, when the dressings were removed, nearly 2 lb. of watery lymph tinged with blood and slightly fetid were discharged from the wound in the vicinity of the heart."

Apparently the bullet had been deflected and had passed around the chest under or along a rib. The man improved after July 22, and by the end of August was able to pull an oar in an open boat.

This Joseph Arnold, the author of these clinical records, was born at Beccles, England, in 1782. He received the degree of M.D. at the Edinburgh Medical School in 1807, and in 1808 entered the medical service of the British Navy. As a youth his chief interest had been in the natural sciences.

"Even on active service Arnold's instincts as a naturalist peeped out, as has been seen, in the interest he took in *Plantago lanceolata* in the treatment of hydrothorax; and, after the war was over and the navy reduced, he gratified his love of research, and at the same time occupied his professional talents by taking medical charge of the *Northampton*, bound to Botany Bay with convicts. During his travels he made a collection of insects from South America, New Holland, and the Straits of Sunda, and also wrote several journals of notes on zoological matters; but unfortunately all these were lost in the burning of the ship (the *Indefatigable*) by which he was proceeding to Batavia. Not daunted he made several excursions with Sir Stamford Raffles in Sumatra. He returned home in 1816, but only that he might the better prepare for further travels and zoological research in the East. Sir Stamford Raffles was by this time (1818) governor of Sumatra, and Arnold obtained employment as naturalist under him. During his second visit to this island he discovered the strange parasitic plant which grows on the wild vine, has neither stem nor leaves, but possesses a flower of great weight, measuring 3 ft. in diameter. Sir Stamford and Arnold are to this day associated together in the name which this plant bears, the *Rafflesia arnoldi*. Arnold also made a fine collection of fossils and shells, which he bequeathed to the Linnean Society, of which he had been

made a Fellow in 1815. He fell a victim to fever, however, at Padang, in Sumatra, in July, 1818, and died 'devoted to science and the acquisition of knowledge, and aiming only at usefulness.' "

Correspondence.

PARIS LETTER.

THE REHABILITATION OF THE HONORABLE PUS-BUG.

(From Our Foreign Correspondent.)

PARIS, FEB. 2, 1915.

"How are the mighty fallen! Tell it not in Gath . . . lest the daughters of the uncircumcised triumph."
"How are the mighty fallen in the midst of the battle! . . . I am distressed for thee, my brother Jonathan."—(II. Samuel, Chap. 1.)

Mr. Editor: There, you see; those sentiments are rather neat. A little knowledge of Scripture is not a bad thing, after all; and those lines express my feelings to a nicety. The true sportsman, the man who "plays the game," is supposed to be he who can take a blow without flinching, even with a smile, and who, when the fight is over, dismisses the matter entirely from his mind, shakes hands with his adversary, and harbours no malice. This beatific state of mind is observed in its most perfect form among the British; two statesmen, who during a week's debate have been moving heaven and earth each to demonstrate that the other is the blackest villain conceivable, will at the end be detected quietly dining with each other at some restaurant, to all intents and purposes on the friendliest of terms. *My* mentality is of the very contrary order; *my* Christian doctrine is never to forget an injury, but to try and repay my adversary, and with interest, even if it takes a lifetime. This is why at the present juncture my midriff is gently pulsating with sinful satisfaction, as I contemplate the depths of ignominy into which the surgical clan has suddenly fallen.

[To an audience of medical men it is superfluous to lay stress on the condition of inferiority, even of downright degradation, in which we have been living during the last few decades *vis-à-vis* to our surgical colleagues. Nor is it necessary to recall their airs of disdain, their mock humility: "Oh, I'm only a surgeon, I don't know anything about that," or the condescension with which they tolerate our presence at a distance, as we view them going through their sacred rites on the other side of a glass screen, even the circumambient ether in which they move being unfit for the vulgar to breathe: *procul, O procul est, profani!*]

When I think of the undoubted paradise in which these gentlemen of the knife have been accustomed to live, especially the younger set, who have seen only the aseptic era, and then compare it with the hideous gloom of Tartaros and Styx into which this war has suddenly plunged them, I try, but altogether in vain, to picture to myself what their frame of mind can be. At one moment to be firmly convinced that the millennium was at hand, that perfection had practically been attained, so that there was really nothing in the way of a surgical intervention that could not be undertaken with entire safety, so far as any danger from infection was concerned; at the next to realize that the clock had been suddenly set back fully fifty years, to see every wound in a large hospital oozing, weeping, even flowing into pus, and to feel that it was not safe so much as to sew up the flaps of a simple amputation.—"how are the mighty fallen," as I quoted in the beginning!

How those good old pus-bugs must be hugging themselves, to find themselves once more before the foot-

lights, and as star performers, if you please. For the whole crew of these phantoms of a bygone age have turned up smiling, from good healthy pus, *le pus louable*, as it used to be called, to all kinds of septic concoctions, virulent mixtures of varying degrees of malignancy, pus of pyocyanic tints (a thing I never saw in the old days, even in the dirtiest wards of the dirtiest surgeons, such as LeFort and Desprès), gangrenous organisms with or without gas, that acme of degradation hospital rot, and the scale of the erysipelas forms of septic virulence. Vatel is said to have committed suicide because the fish did not arrive in time for his mother's banquet; what conceivable form of harakiri ought these surgeons to indulge in, in presence of this lamentable catastrophe and the utter collapse of all their wonderful *Châteaux en Espagne*!

When I say that the wounds of these unfortunate soldiers suppurate, and all suppurate, I put the matter in the most sober terms, for from a large number of these wounds, particularly the jagged, deep and irregular shell-injuries, the pus simply wells up in a steady stream. One wonders where it possibly can come from! If you leave one of these cases only twenty-four hours under a dressing, the pus will have soaked through, wormed its way out under the edges, and have soiled nightshirt, pillow, sheet and even mattress! It is something fantastic. So these wretched surgeons are practically impotent, and contemplate this revival of the sway of the pus-bug with faces of horror and consternation; all they can do is to open up widely, remove fragments, foreign bodies, and tissue that must necessarily mortify, clean the region up,—and then let the wound suppurate until it has had enough. And this is their sole occupation from early morn till dewy eve, so that their inward feelings must be of a rather hectic tinge. For, if you will consider a moment, many of these young men, who have lived chiefly in regions where accidents are not apt to occur,—that is, away from factory districts, large railroad centers, etc.,—and whose practice has been in the main among the better-class civilians,—have scarcely ever seen a wound suppurate, even in the simplest manner; with modern operating-theatres, and a perfect technic, where would a surgeon's reputation be if his incision were to suppurate after an abdominal section or breast-removal! So at the present moment, if you have a surgeon friend and really wish to make him react, to see his body stiffen as the poor victims do in the Sing Sing electrocution chair, and to witness the high tension current escape from the points of his anatomy in forty cm. sparks, just ask him in an innocent way if it is true that the nurses in his ambulance have to wear indiarubber boots to keep out of the pus, or whether the authorities are really proposing to inquire into his high mortality-rate from hospital-rot!

We will now leave these filthy pigs to wallow in their blue pus and turn to our own part of the show and inquire how the medical fraternity has come out of the present ordeal.

Not so badly, on the whole. The remark was made by everybody, during the first three or four months of the war, that the morbidity was practically a negligible quantity, in comparison with the traumatisms,—that the sick-rate in the army was not any greater than, if indeed as high as, among the civilian population. In fact, you simply did not hear of any sick, only of the wounded. Of late, however, the situation has changed; but when you consider the conditions that have prevailed, the only wonder is that it is not many times worse than it is. For, remember that we have here to deal with a Latin people, none of whom stand anywhere, as compared with our Anglo-American requirements, either in personal cleanliness or habits of hygiene. Now when you think that these hundreds of thousands of men have been immobilized for well over two months in or back of lines of trenches dug in clay in a perfectly flat country only just above sea-level, with practically no drainage, while the entire region is polluted with myriads of decom-

posing and badly interred bodies of men and animals, and any such thing as proper scavenging is out of the question in the zone of firing, it is little short of a miracle that the various intestinal infections of a dysenterical or typhoidal variety should have remained as infrequent as they have. Two things, and two things alone, can be advanced to explain this unexpectedly favorable situation: The fact that a large number of men have been vaccinated for typhoid, and the fact that it has been midwinter, with incessant rain and no inducement to drink water. Had this situation arisen in midsummer, with endless dust, flies, and the thirsty men drinking just anywhere, we should in all likelihood have had a very different tale to tell. To those favorable factors must be added that the men have been well and intelligently fed, and that their spirits and confidence stand at *beau-fixe*,—both of these details being of prime importance as regards a man's receptivity for infectious disorders.

I imagine that when the figures come to be known it will be found that the results, as far as morbidity is concerned, will on this side of the line not bear comparison with those obtained by the Japanese in the Manchurian campaign, on account of the great difference in the hygienic customs of the two peoples: The Jap considers himself dishonored if he does not more or less boil himself in a cauldron every day of his life; whereas, if the Gaul ever washes it is because he has fallen in the river or been overtaken by a drenching rainstorm in the open. But at least, up to the present moment of writing, we have had nothing even remotely, to compare with what took place in South Africa during the first part of that war. However, we are only on the prelude of *this* war. So, perhaps, it will be wise not to give too great an air of finality to these remarks.

But a moderate amount of typhoid and dysentery is a mere nothing compared with the slough of despond of the surgical side; to be anywhere near on a footing with them we ought to have a big epidemic of typhoid, with the vermin-borne forms of typhus, spotted and recurrent, in addition; and this is precisely what we have *not* got, in spite of the fact that they say that the vermin in the fighting lines is something incredible. So far nothing has been heard of typhus, although it is indigenous in the regions from which so many of the African troops have been brought. In former days typhus generally occurred in besieged cities, prisons and famine-stricken districts. Here again the proper nourishment of the troops, together with their cheerfulness and enthusiasm, may have acted as a powerful deterrent under certainly most unfavorable general conditions.

So that it is quite fair to sum up and claim that on the whole, and taking a wide view of the entire situation, the medical side of this war has come out perhaps better than it deserved to,—a point that I may, perhaps, touch on in a future letter. The question is whether this situation is likely to continue to the end; whether when the heat comes, or if the allies begin to move over regions that have been contaminated by their adversaries for months and months, their health will remain at its present high standard. This is more than anyone can foretell; we can only wait and see.

"S."

TRANSFUSION IN THE TREATMENT OF RUPTURED TUBAL PREGNANCY.

Boston, February 10, 1915.

Mr. Editor: Judging by the editorial in the *JOURNAL* of Jan. 28, 1915, in which issue my paper on "Emergencies of Extrauterine Pregnancy" was published, I fear my attitude toward blood transfusion was misunderstood. The point which I wished to emphasize especially in regard to the use of some fluid to replace the blood loss, was that the fluid

should be introduced in such a manner as to be gradually absorbed. In the cases where this has been carried out, the recoveries from anemia have appeared to be more rapid. There is also a danger in the sudden introduction of a large amount of fluid into the blood vessels, as by this procedure the strain on the heart is increased and the composition of the blood changed. Where salt solution has been given intravenously, there has often been a deterioration in the appearance of the patients a day or two following operation, which did not seem to be present to such a degree in those who had gradually absorbed the fluid either from the subcutaneous tissues or from the rectum. In one or two instances the heart seemed to be affected by the increased work thrown upon it, or by the change in the blood.

In regard to blood transfusion, it was stated in my article that my experience with it in this class of cases was limited to two individuals, but that in these two cases blood transfusion showed no advantage over the use of salt solution; judging from the appearance of the patients a day or two after operation.

I am not opposed to blood transfusion as such, and the only reason it has not been used in some instances has been the lack of a donor, but in the two cases mentioned above, it seemed to me that there was a distinct indication of hemolysis. My remarks were meant to be confined to these two individuals, and not intended as a general statement, although there is a question in my mind whether the intravenous use of either blood or salt solution is always beneficent in these cases.

Very truly yours,

ERNEST B. YOUNG, M.D.

434 Marlborough Street.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING FEB. 13, 1915.

CONTRIBUTIONS.

Dr. O. O. Cooper, Hinton, W. Va.....	\$ 10.00
Dr. F. A. Dodge, Le Sueur, Minn.....	10.00
Dr. Alfred A. Herzfeld, New York, N. Y.....	10.00
Dr. A. W. Sicker, Plymouth, Wis.....	5.00
Dr. Charles H. Cargile, Bentonville, Ark.....	10.00
Dr. A. A. Bornscheuer, Pittsburg, Pa.....	2.00
Dr. Lyn Waller Deichler, Philadelphia, Pa...	5.00
Dr. H. T. Goodwin, New York, N. Y.....	5.00
Dr. Henry S. Weigle, Muncy, Pa.....	5.00
Dr. James S. Keyes, Brooklyn, N. Y.....	5.00
Dr. J. I. Johnston, Pittsburgh, Pa.....	15.00
Dr. Frederick J. Resseguie, Saratoga Springs, N. Y.	10.00
Dr. Frank H. Jackson, Houlton, Me.....	5.00
Dr. Howard L. Frost, Cleveland, Ohio.....	10.00
Dr. P. St. L. Moncure, Norfolk, Va.....	5.00
Dr. A. J. Braden, Duluth, Minn.....	5.00
Dr. Wendell C. Phillips, New York, N. Y...	75.00
Dr. Russell S. Fowler, Brooklyn, N. Y.....	25.00
Dr. John W. Farlow, Boston, Mass.....	25.00
Dr. E. W. Link, Palestine, Texas.....	10.00
Dr. H. R. Link, Palestine, Texas.....	5.00
Dr. H. Gifford, Omaha, Neb.....	100.00
Jefferson Co. Med. Society, Birmingham, Ala.	50.00
Dr. Edgar R. McGuire, Buffalo, N. Y.....	10.00
Dr. Max Einhorn, New York, N. Y.....	25.00
Dr. Joseph L. Miller, Thomas, W. Va.....	10.00
Dr. David Chester Brown, Danbury, Conn...	10.00
Oshkosh Medical Club, Oshkosh, Wis.....	50.00
Dr. George M. Dill, Prescott, Wis.....	1.00
Camden Co. Medical Society, Camden, N. J..	50.00
Dr. Joseph Walsh, Philadelphia, Pa.....	10.00
Dr. L. B. Pillsbury, Lincoln, Nebr.....	5.00
Dr. E. E. Montgomery, Philadelphia, Pa....	25.00
Dr. J. T. Clegg, Siloam Springs, Ark.....	1.00
Dr. K. B. Huffman, Bentonville, Ark.....	1.00

Receipts for week ending Feb. 13th.... \$ 605.00
Previously reported receipts..... 2528.00

Total receipts..... \$3133.00
Previously reported disbursements...\$2530.00
Disbursements week ending Feb. 13,
275 boxes of food @ \$2.20 per box 605.00
Total disbursements..... \$3135.00

Deficit \$2.00
F. F. SIMPSON, M.D., *Treasurer.*

An American gentleman who saw the food and clothing put into the hold of the steamship, *Lynorta*, which took supplies, for the State of Virginia, to the Belgians, crossed the Atlantic on the ship and went into Belgium to watch the distribution of the articles among the people. He has returned and declares: First, that every pound of flour and every article of clothing sent from America by the Relief Commission is received by a Belgian; and second, that all who get such gifts are in direct need of them. Hunger seems to have broken down all class distinctions in Belgium.

Physicians and their families have shared the common fate. Appeals for food, drugs, and clothing are numerous and urgent. The resources of your Committee have been so limited that we have not felt justified in sending anything but food to our starving Colleagues; 156 physicians and 11 medical societies have thus far contributed to this fund. There are approximately 142,300 physicians in the United States. If each one would contribute even a small sum, it would be possible to supply the necessary food, drugs, and clothing. Do not hesitate because your check is not as large as you would like it to be. Contributions of any amount will be welcome.

Every cent you give will be economically spent for supplies for Belgian physicians and their families. There are no charges for shipping and distribution.

Not a cent has been spent for stenography, stationery, stamps, or other accessory.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE FIVE WEEKS ENDING FEB. 12, 1915.

January 18, P. A. Surgeon E. V. Valz, to Naval Hospital, Portsmouth, N. H.

January 21, Surgeon H. E. Odell, detached, Naval Hospital, Canacao, to Naval Hospital, Yokohama, Jap.
P. A. Surgeon F. E. Porter, detached, Naval Hospital, Yokohama, to U.S.S. *Cincinnati*.

A. Surgeon D. C. Post, detached, *Palos*, to *Quiros*.

A. Surgeon M. B. Hiden, detached, Naval Hospital, Canacao, to *Palos*.

Surgeon J. C. Thompson, to Navy Recruiting Station, San Diego, Cal.

Surgeon J. M. Brister, detached, *Utah*, to Atlantic Reserve Fleet.

Surgeon J. F. Murphy, detached, *Montana*, to home and wait orders.

Surgeon H. D. Wilson, to *Utah*.

Surgeon M. K. Johnson, to *Montana*.

Surgeon F. E. McCullough, detached, Naval Training Station, Newport, to Naval Training Station, San Francisco.

Surgeon D. N. Carpenter, detached Bureau of Medicine and Surgery, to Naval Training Station, Newport.

January 22, P. A. Surgeon F. G. Abeken, detached, Naval Station, Guam, to U.S.S. *Supply*.

A. Surgeon G. W. Calver, detached, *Supply*, to Naval Station, Guam.

January 28, P. A. Surgeon M. C. Baker, to Naval Station, New Orleans, La.

February 1, A. Surgeon Louis Lehrfeld, Resignation accepted effective January 29, 1915.

February 4, P. A. Surgeon C. M. George, detached, Pacific Torpedo Flotilla, to home and wait orders.

February 5, A. Surgeon H. V. Cornett, to Naval Hospital, Canacao.

P. A. Surgeon Wm. Chambers, to Naval Station, Olongapo.

A. Surgeon L. H. Roddis, to Naval Hospital, Canacao.

February 6, Surgeon J. C. Pryor, detached, *North Dakota*, to *Montana*, connection, Regiment Marines.

P. A. Surgeon L. M. Schmidt, detached, *Louisiana*, to *Montana*, connection, Regiment Marines.

February 9, P. A. Surgeon J. G. Ziegler, detached, *West Virginia*, to Pacific Torpedo Flotilla.

February 11, Surgeon W. S. Hoehn, detached, Pacific Reserve Fleet, to *Colorado*.

APPOINTMENTS.

It is announced that Dr. S. H. Chuan, a graduate of Harvard University, has been appointed Surgeon-General of the Chinese Empire and elected president of the Chinese Army Medical college at Tien-tsin.

Dr. George Lovell Gulland, M.A., B.Sc., F.R.C.P.E., has been appointed professor of medicine in the University of Edinburgh.

Dr. J. A. Murray has been appointed acting director of the British Imperial Cancer Research Fund, succeeding Dr. Bashford who has recently resigned on account of ill health.

The officers of the various sections of the New York Academy of Medicine for the year 1915 are as follows: Dermatology and syphilis, Dr. Charles M. Williams, chairman, Dr. Walter J. Heilmann, secretary; surgery, Dr. Clarence A. McWilliams, chairman, Dr. John Douglas, secretary; neurology and psychiatry, Dr. Israel Strauss, chairman, Dr. Foster Kennedy, secretary; pediatrics, Dr. Walter L. Carr, chairman, Dr. Royal S. Haynes, secretary; otology, Dr. C. D. Van Wagenen, chairman, Dr. John A. Robinson, secretary; ophthalmology, Dr. H. H. Tyson, chairman, Dr. George H. Bell, secretary; medicine, Dr. T. Stuart Hart, chairman, Dr. Nellis B. Foster, secretary; genito-urinary diseases, Dr. Leo Buerger, chairman, Dr. A. R. Stevens, secretary; orthopedic surgery, Dr. Arthur H. Cilley, chairman, Dr. P. W. Roberts, secretary; obstetrics and gynecology, Dr. LeRoy Brown, chairman, Dr. George W. Kosmak, secretary; laryngology and rhinology, Dr. Hubert Arrowsmith, chairman, Dr. Francis W. White, secretary.

RESIGNATION.

Dr. William H. Park, director of laboratories of the New York Department of Health has resigned his administrative position as dean of the New York University Medical College, but will continue there as professor of bacteriology and hygiene.

NOTICES.

Physicians visiting the city will be cordially welcomed at the following clinics on the days and hours specified.

BOSTON CITY HOSPITAL.—After January 1, 1915, public operations will be performed in the Surgical Amphitheatre each week, on Thursdays, Fridays and Saturdays, at 10 o'clock.

Thursday: First Surgical Service, Dr. Blake.

Friday: Third Surgical Service, Dr. Nichols, and Fourth Surgical (G-U) Service, Dr. Thorndike.

Saturday: Second Surgical Service, Dr. Lund.

CARNEY HOSPITAL.—Dr. Bottomley and Dr. Mahoney will hold an operative surgical clinic every Wednesday at 9 A.M., and at the same hour on the same day Dr. W. R. MacAusland will hold an orthopedic clinic. All physicians are welcome to attend.

MASSACHUSETTS GENERAL HOSPITAL.—1. A surgical clinic Tuesday, at 12, in the out-patient amphitheatre. 2. Operations in the Bigelow amphitheatre Saturdays from 10 to 1. 3. Operations in the Surgical Building except Sunday, from 9 to 1. 4. Daily

surgical ward visits at which visiting physicians will be welcome. 5. Clinic in medicine and pathology Tuesdays at 12, by Drs. R. C. and H. Cabot and O. Richardson. 6. Medical clinic Thursday at 12, by Dr. D. L. Edsall.

PETER BENT BRIGHAM HOSPITAL.—Physicians visiting the city will always be cordially welcomed at the Peter Bent Brigham Hospital.

The medical visit takes place regularly every morning beginning at 10 o'clock.

Operations are usually going on throughout the forenoon in the surgical amphitheatre.

The surgical clinic is held in the clinical amphitheatre on Wednesdays at 12.30 P.M.

The medical clinic is held in the clinical amphitheatre on Mondays at 12.30 P.M.

The clinico-pathological demonstration is held in the clinical amphitheatre on Fridays at 3.30 P.M.

MASSACHUSETTS GENERAL HOSPITAL.—A medical meeting, open to the medical profession, will be held at 12 noon on Monday, March 1, 1915, in the lower amphitheatre of the out-patient department. Entrance on Fruit street. 1. Exhibition of cases. 2. Dr. J. H. Wright. A study of the inhibitory action of syphilitic serum on the formation of thrombin as compared with the Wassermann test. 3. Dr. G. C. Shattuck. A study of percussion dullness and the cardiac border. 4. Dr. J. H. Means and H. L. Higgins. The effect of drugs upon respiration in health.

F. A. WASHBURN, M.D., *Resident Physician*.

SOCIETY NOTES.

NEW ENGLAND PEDIATRIC SOCIETY.—The thirty-sixth meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, February 26, 1915, at 8.15 P.M.

1. "Typhoid Fever in Children," Dr. Karlton G. Percy, Boston.

2. "Homogenized Milk. Its Possible Uses in Infant Feeding," Dr. Maynard Ladd, Boston.

3. Luetic Bursopathy of Verneuil. Report of a Case. Congenital Type," Dr. William P. Cones, Boston.

4. "Some New Symptoms in Amaurotic Family Idiocy," Dr. Isador E. Coriat, Boston.

Light refreshments will be served after the meeting.

E. M. BUCKINGHAM, M.D., *Pres.*

RICHARD M. SMITH, M.D., *Sec'y.*

THE HARVEY SOCIETY.—The ninth lecture of the series will be given at the New York Academy of Medicine, 17 West 43rd street, on Saturday evening, February 27th, at 8.30 P.M., by Prof. R. R. Bensley, University of Chicago. Subject, "Structure and Relationship of the Islets of Langerhans and Criteria of Histological Control in Experiments on the Pancreas."

BOOKS AND PAMPHLETS RECEIVED.

Speculation on the Stock Exchanges and Public Regulation of the Exchanges. An address delivered before the American Economic Association at Princeton, N. J., December 29, 1914.

The Story of Bethlehem Hospital from Its Foundation in 1247. E. G. O'Donoghue. E. P. Dutton & Company, 1915.

Morris's Human Anatomy, edited by C. M. Jackson, M.D. Fifth edition. P. Blakiston's Son & Co. 1915.

The Diagnostics and Treatment of Tropical Diseases, by E. R. Stitt, M.D. P. Blakiston's Son & Co.

Selected Addresses on Subjects Relating to Education, Biography, Travel, etc., by James Tyson, M.D. P. Blakiston's Son & Co.

The Balneo-Gymnastic Treatment of Chronic Diseases of the Heart, by Professor Theodor Schott, M.D. P. Blakiston's Son & Co.

The Boston Medical and Surgical Journal

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Original Articles.

THE CARNIVOROUS AND HERBIVOROUS TYPES IN MAN:

THE POSSIBILITY AND UTILITY OF THEIR RECOGNITION.*

I. INTRODUCTION AND OUTLINE.

BY JOHN BRYANT, M.D., BOSTON.

In a previous paper,¹ some account was given of the general considerations which led to the present studies, together with methods and the amount of work done upon the subject suggested by the above title. At about the same time, May, 1914, a bibliography² was presented, which in a broad way covered the various aspects of the literature. The time now devoted to the problem has been extended to about three years. A total of some five hundred post-mortems have been observed in this period, chiefly in Berlin and Hamburg, upon which it is expected to make some detailed remarks when the present series of papers has been concluded. In addition to the pathological work, many patients have been seen in the hospitals here and abroad, and much valuable information has been gained through conversations with numerous able American and European clinicians.

On the basis of this preparation, there has been constructed the provisional outline which follows. It is by no means to be considered as

final, but it at least provides a method of classification open to proof, and it is felt that it can be corrected and amplified until it has become of distinct value as an aid to clinical medicine, from the point of view not only of diagnosis and treatment, but of prognosis and, still more important, of prevention.

There are of course innumerable ways of classifying the human race. Some one has divided it into those in pursuit of truth and those in pursuit of happiness. Bean has suggested a logical and scientific classification upon the basis of the three germ layers, but this involves three divisions. Can the human race for descriptive purposes be split into two contrasting halves? With his usual perspicacity, the common man has settled the question in the way most obvious to him by employing the terms thin and fat, as witness such nursery rhymes as "Jack Spratt and his wife." It will be shown that this is a sound classification, since it is an outward manifestation of structural differences grouped in the present work under the heading of type: carnivorous and herbivorous. It would be manifestly absurd to claim any originality for the use of these two words. They have been used for scores, almost hundreds, of years as the basis of a broad classification of the lower animals, and Treves and many other workers both before and after him have pointed out that from a developmental point of view man lies midway in the scale between these two extremes; but there the matter has rested.

It is now proposed to apply this old comparative anatomy classification to the genus homo, and to attempt to show not only the logic of its application, but the extent to which it may be made useful: herein lies whatever of originality there may be in the present studies: but credit for

* Being Contributions from the Psychopathic Hospital Number 66 (1915.3). The article was presented in abstract at a meeting of State Hospital physicians and others held at the Psychopathic Hospital, January 4, 1915. (Bibliographical Note.—The previous contribution, Number 65 (1915.2), was by Robert M. Yerkes, entitled "The Importance of Social Status as Indicated by the Results of the Point Scale Method of Measuring Mental Capacity," submitted to the *Journal of Educational Psychology*.)

originality is beside the point, for the only question at issue, upon which it is hoped to stimulate discussion is the following: Is the classification here presented of value to clinical medicine?

Among the facts in comparative anatomy which may be taken as proved by work recorded by others in the literature, may be mentioned the following:

1. Body form influences intestinal length, regardless of food habits.

2. Intestinal length varies with the species, regardless of food habits.

3. In a given species intestinal length may vary 100%.

4. This variation depends chiefly upon the digestibility of the food.

5. Offspring of one mother have at birth approximately the same intestinal length.

6. In a given adult individual of one species body form and intestinal length are dependent chiefly upon heredity, the form or digestibility of the food presented during the growing period, and the general habits of life. Sex plays an almost negligible part in this regard.

7. The carnivorous or herbivorous habit is not obligatory. Animals predisposed by their species to one or the other of these extremes of food habit, may within wide limits when forced by necessity reverse their normal manner of life, being thus as it were facultatively carnivorous or the reverse. For example, the polar bear may be forced to live upon kelp, and the cow may exist in comparative comfort upon fish.

8. In the group of mammals, the carnivora are distinguished by a long thin body form, and a short simple type of intestine in which the small intestine is markedly longer than the colon. The herbivora, on the other hand, present a marked contrast; the body form is short and thick, and the intestine long and complex, with the small intestine perhaps barely equal in length to the colon.

In man, the intestine is of intermediate character, nearer to the carnivora than to the herbivora, but here also one finds extremes of difference in intestinal length amounting as in the lower animals to at least 100% at a given age or height.

If now one attempts to divide the genus homo itself into the two groups of herbivorous and carnivorous, the contrast is more striking when the group "omnivorous" is omitted, and since it is merely a combination, always in varying proportions, of the other two factors, its use is confusing. An additional reason for omitting "omnivorous" from a medical classification is that man is normally omnivorous, and the normal man is usually healthy. Medicine is concerned chiefly with the abnormal, the "sports" of development. Much of our progress is doubtless due to these same sports, but to them the ordinary life and ordinary food of the normal man are ill adapted. They require special care for maximum efficiency, and since food is the chief essential to life, the regulation of the diet

in these sports becomes a matter of considerable moment. The direction of the change in these cases is usually away from the ordinary or mixed diet, and in the direction of a predominatingly meat or vegetable diet, according to the indications of one or the other type suggested by the body form. The extremes of these types in man present almost as great contrasts as do the tiger and the hippopotamus in the jungle and the zoological garden.

If one could go no further than to say that type is proven in the lower animals and that it is susceptible of proof in man, the whole proposition would remain as a museum curiosity. If, however, it can be applied to clinical medicine, it must remain a live issue. It would, for instance, be worth while if it could be shown that by mere observation, before using instruments of precision, one could state even approximately that a given patient has probably had or is likely to have had certain diseases and not others, that his present complaints are so and so, and that in the future this person will be subject to say high blood pressure hypertrophic arthritis or gall-stones, and that person to tuberculosis, atrophic arthritis, or leukaemia. That some at least of these diagnoses and prognoses are possible is suggested by the contents of the following differential tables, and it is hoped that they may prove of interest not only to the physician, but to the employer of labor, and to the life insurance actuaries who must deal so largely, so to speak, in futures.

The tables which follow are arranged, in default of a better method, in alphabetical order, and are intended to bring out the contrasts between the two types in question; therefore they are presented at first, with a minimum of reading matter, and will be followed in later issues of this JOURNAL by papers dealing at more length with their contents when repetition will be much less obvious. It is perhaps sufficient for the present to point out two general principles.

The first may be called the law of contrasts, for it seems that where one can prove a given point for one type, its opposite may be expected to prove true in the other type. So-called normal anatomy seems to have been based chiefly upon the herbivorous type. The consideration of the numerous mixed types is purposely omitted from this paper.

The second general principle is, that in a broad way the herbivore would appear from a study of the tables as a positive and the carnivore as a negative organism. The carnivore in short may be regarded either as an inferior or as a very highly specialized organism, for in him the only systems developed or remaining present in excess, are those necessary to the perpetuation of the species: the central nervous system, and the reproductive system. In this connection, it is perhaps worthy of remark that the majority of persons who had reached advanced age before appearing in the series of autopsies referred to,

seemed to be decidedly of the carnivorous type. Extremes in variation of organs, appear also to occur often within the limits of this type.

References to the literature will be given in the later consideration of the tables, but only in cases of special interest, or when sources have not already been indicated in the two papers previously mentioned. Statements for which no other authority is to be found, may be considered as based upon personal observations.

¹ Bryant: BOSTON MED. AND SURG. JOUR., 1914, Vol. clxx, p. 795.
² Bryant: Internat. Abstract of Surg., May, 1914,
 (As printed this article contained many errors. Corrected reprints have been sent to most of the larger medical libraries.)

HERBIVOROUS.		TABLE I.		CARNIVOROUS.	
		BILIARY.			
Amount secreted, large.....	Plus	..... BILE	Minus	Less abundant	
Passes through liver to bile.....	Plus	CHOLESTERIN*	Minus	Retained in circulation by liver acting as a filter. Amount in bile small.	
With liver large.....	Plus	.. CIRRHOSIS ..	Plus	With liver small.	
Muscular, small, thick.....	Minus	GALL BLADDER GLYCOCHOLIC	Plus	Atrophic, large, thin, ptotic.	
Present in relatively small amounts	Minus	..... ACID*	Plus	(C ₂₂ H ₄₃ NO ₆).	
		(Contains no sulphur)			
Large, high, transverse.....	Plus	..... LIVER	Minus	Small, low, perpendicular.	
May be pure cholesterol.....	Plus	.. GALL-STONES ..	Plus	Stones, if present, always of infectious origin.	
		TAUROCHOLIC			
(C ₂₆ H ₄₅ NO ₇ S).....	Plus	..... ACID*	Minus	Present in relatively small amounts.	
		(Contains sulphur)			

* Facts true for the lower animals.

HERBIVOROUS.		TABLE II.		CARNIVOROUS.	
		CARDIO-RENAL.			
Cholesterol deposits in retina.....	Plus	ALBUMINURIC .. RETINITIS ..	Minus		
Large	Plus	..... AORTA	Minus	Small.	
Apoplexy	Plus	ARTERIO-SCLEROSIS ..	Minus		
	Plus	... ASCITES ...	Minus	Cardio-renal disease less frequent.	
May be extremely high.....	Plus	BLOOD PRESSURE	Minus	Usually low.	
Blood content high.....	Plus	CHOLESTERIN	Minus	Blood content lower.	
High	Plus	.. DIAPHRAGM ..	Minus	Low.	
	Minus	EOSINOPHILES	Plus	Often +	
Large, transverse	Plus	... HEART	Minus	Small, perpendicular.	
	Minus	... LEUKEMIA ..	Plus	Usually in this type.	
	Minus	LYMPHOCYTES	Plus	Usually +	
Large, high	Plus	... KIDNEY	Minus	Small, low.	
High tension, fast, full.....	Plus	... PULSE	Minus	Low tension, slow, weak.	
		RED BLOOD			
Hemoglobin and count high.....	Plus	.. CORPUSCLES ..	Minus	Hemoglobin and count low.	
		STATUS-			
	Minus	LYMPHATICUS	Plus	Always of this type.	

HERBIVOROUS.		TABLE III.		CARNIVOROUS.	
		CHEMICAL.*			
Easily fatal. No formation of NH ₄ from proteids.....	Plus	... ACIDOSIS ...	Minus	Not easily fatal. NH ₄ formed in considerable amounts.	
In urine +.....	Plus	... CALCIUM ...	Minus	Usually only small amounts.	
Percent. in blood and supra-renal high	Plus	CHOLESTERIN	Minus	Percent. in blood and supra-renal low.	
Large, light, acid, fermentative....	Plus	... FAECES	Minus	Small, dark, alkaline, putrefactive.	
		GLYCOCHOLIC			
Relatively small amounts in bile...	Minus	..... ACID	Plus	Large amounts in bile.	
		(C ₂₂ H ₄₃ NO ₆)			
		HIPPURIC			
In urine +.....	Plus	..... ACID	Minus	Usually absent in urine.	
Usually absent in urine.....	Minus	... INDOXYL ...	Plus	In urine often in large amounts.	
Formed only from dextrose.....	Minus	... LACTOSE ...	Plus	Formed from proteid also if necessary.	
		NITROGEN			
Decreasing with length of fast.....	Minus	ELIMINATION	Plus	Constant during fast.	
Usually small amounts only.....	Minus	PHOSPHATES	Plus	In urine +	
		TAUROCHOLIC			
In bile +.....	Plus	..... ACID	Minus	Relatively small amounts in bile.	
		(C ₂₆ H ₄₅ NO ₇ S)			
Usually small amounts only.....	Minus	... UREA	Plus	In urine +	
Always present but in traces only..	Minus	.. URIC ACID ..	Plus	Amount varies with diet: may be high or absent.	
		NITROGEN			
Normally alkaline or neutral.....	Minus	... URINE	Plus	Normally acid.	
Not limited.....	Plus	URINARY ACIDITY	Minus	Limited.	

* Known to be true in the lower animals, and probably true in human types.

TABLE IV.

HERBIVOROUS.		DUCTLESS GLANDS.		CARNIVOROUS.
Small	Minus	... GENITAL ...	Plus	Large, reproductive functions +
May be large or cystic: adiposis, gigantism, acromegaly.....	Plus	.. HYPOPHYSIS ..	Minus	Variations slight.
Usually large.....	Plus	.. PANCREAS ..	Minus	Usually small.
Calcium balance normal.....	Plus	.. PARA-THYROID ..	Minus	Tetany not infrequent.
Normal or large.....	Plus	.. THYMUS ...	Minus	Usually deficient, may be very large.
Myxoedema	Minus	.. THYROID ...	Plus	Exophthalmic goitre.
Always large, especially cortex.....	Plus	.. SUPRA-RENAL ..	Minus	Always small, vagotomy frequent.

TABLE V.

HERBIVOROUS.		DIGESTIVE.		CARNIVOROUS.
Usually of acquired type, especially in region of gall bladder.....	Plus	.. ADHESIONS ..	Plus	Largely congenital as veils, also flexure adhesions frequent.
Small at base, short, tubular.....	Minus	.. APPENDIX ...	Plus	Large at base, long, conical.
Usually fulminating, often fatal....	Plus	.. APPENDICITIS ..	Plus	Usually chronic and mild.
Long, large, high.....	Plus	... COLON	Minus	Short, small, low.
Atonic; sympathetic stimulation in excess causes decreased peristalsis	Plus	.. CONSTIPATION ..	Plus	Spastic; vagus stimulation in excess causes increased peristalsis.
		DUODENAL		
Rare	Minus	... ULCER	Plus	Frequent.
Rare	Minus	GASTRIC ULCER	Plus	Frequent.
		HEPATIC		
Normal	Minus	.. FLEXURE ...	Plus	High or absent.
		ILEO-CAECAL		
Normal position, firmly attached...	Minus	... VALVE	Plus	High or low, loosely attached.
Muscular, long, thick walled.....	Plus	.. INTESTINE ..	Minus	Short, thin walled.
Infrequent, acquired.....	Minus	... PTOSIS ...	Plus	Frequent, congenital.
		RATIO, COLON		
May be as 1 : 1.....	Plus	TO SMALL IN-	Minus	Often at 1 : 5, never as 1 : 1.
		TESTINE		
Usually short.....	Minus	SIGMOID LOOP	Plus	Usually long, may reach to diaphragm.
		SPLENIC		
Normal	Minus	... FLEXURE ...	Plus	Often high, rarely very low.
Normal, transverse.....	Minus	.. STOMACH ...	Plus	Tubular, long or dilated, often low.
Sympatheticotony its antithesis....	Minus	.. VAGOTONY ..	Plus	Always in this type.

TABLE VI.

HERBIVOROUS.		DIET.		CARNIVOROUS.
		CARBO		
Normal diet.....	Plus	.. HYDRATES ..	Minus	Easily cause gas formation.
Normally acid, fermentative, large.	Plus	... FAECES	Minus	Normally alkaline, putrefactive, small.
Normal diet.....	Plus	... FATS	Minus	Easily cause fat indigestion.
Easily taken in excess.....	Minus	.. PROTEIDS ..	Plus	Normal diet.

TABLE VII.

		EYE.		
		ALBUMINURIC		
Visible cholesterin deposits.....	Plus	.. RETINITIS ..	Minus	
Visible cholesterin deposit.....	Plus	.. ARCUS SENILIS ..	Minus	
	Minus	.. ASTHENOPIA ..	Plus	With general asthenia.
Cholesterin a factor?.....	Plus	.. CATARACT ..	Minus	
Pupil large.....	Plus	CILIARY MUSCLE	Minus	Pupil small.
	Minus	CONGESTIONS	Plus	Due to poor circulation?
Iris angle wide, lymph flow not obstructed	Minus	.. GLAUCOMA ..	Plus	Lymph outflow easily obstructed.
	Minus	.. HYPEROPIA ..	Plus	Low blood pressure.
		INTER-OCULAR		
Nose wide, flat.....	Plus	.. DISTANCE ..	Minus	Nose thin, prominent.
High blood pressure.....	Plus	... MYOPIA	Minus	
Cholesterin a factor?.....	Plus	.. OPACITIES ..	Minus	
External	Plus	... SQUINT ...	Plus	Internal.
Visible cholesterin deposits.....	Plus	.. XANTHOMA ..	Minus	

TABLE VIII.

HERBIVOROUS.		HABITS AND DISEASES.		CARNIVOROUS.
Light wine or beer with low alcohol content, if alcohol is used at all	Minus	... ALCOHOL ...	Plus	Brandy or whiskey and other distilled liquors with high alcohol content preferred.
		DRUGS	Plus	As morphia and cocaine.
Starches, greens, vegetables.....	Plus	... FOOD	Plus	Meats, greens, no starches.
Prefers sugar to alcohol.....	Plus	... SUGAR	Minus	Prefers alcohol to sugar.

HERBIVOROUS.		TABLE VIII. (Continued.)		HABITS AND DISEASES.		CARNIVOROUS.	
Infrequent, acute, severe, more often fatal		Plus	..	INFECTIONS ..	Plus	Frequent, chronic, mild, seldom fatal.	
Ulcer and gumma.....		Plus	..	SYPHILIS ..	Plus	General paresis and tabes.	
Cardio-renal and mesenchymal tissues		Plus	..	SYSTEMIC ..	Plus	Central nervous system, gastro-intestinal tract, skin, or other epithelial structures.	
		Minus	..	TUBERCULOSIS	Plus	Pulmonary, in over 90% of cases occurs in this type.	

HERBIVOROUS.		TABLE IX.		LYMPHATIC.		CARNIVOROUS.	
		Minus	..	GLANDS ..	Plus	Frequently enlarged.	
Normal		Minus	..	LEUKAEMIA ..	Plus	Usually in this type.	
Small		Minus	..	SPLEEN ..	Plus	Small or large.	
		Minus	..	TONSILS ..	Plus	Often large.	

HERBIVOROUS.		TABLE X.		MENTAL.		CARNIVOROUS.	
Systemic changes, slow onset, usually quiet		Minus	..	DISEASES ..	Plus	Acute onset, sudden psychoses, often violent.	
Deductive, slow, persistent.....		Minus	..	MENTALITY ..	Plus	Inductive, active, changeable.	

HERBIVOROUS.		TABLE XI.		ORGANS.		CARNIVOROUS.	
Heavy		Plus	....	BONE	Minus	Light.	
Normal		Minus	....	BRAIN	Plus	Large, rarely very small, in relation to body weight.	
		Plus	..	GASTRO-INTESTINAL ..	Minus	Short, simple.	
Long, complex		Minus	..	GENITAL ..	Plus	Always relatively in excess.	
Thin, light.....		Minus	....	HAIR	Plus	Thick, dark.	
Large		Plus	....	HEART	Minus	Small.	
Large or cystic.....		Plus	..	HYPOPHYSIS ..	Minus	Often small.	
Large		Plus	..	KIDNEY	Minus	Small.	
Large		Plus	..	LIVER	Minus	Small.	
Usually expanded, often emphysematous		Plus	....	LUNGS	Minus	Usually compressed, often atelectatic.	
Normal		Minus	..	LYMPHATIC ..	Plus	Nodes often enlarged or deficient.	
Short, thick		Plus	..	MUSCLES ..	Minus	Long, thin.	
Small		Minus	..	OVARY	Plus	Always large, often cystic.	
Large		Plus	..	PANCREAS ..	Minus	Small.	
Small		Minus	..	PENIS	Plus	Large.	
Often hypertrophied.....		Plus	..	PROSTATE ..	Minus	Usually small.	
Thick, moist, pink.....		Plus	....	SKIN	Minus	Thin, dry, sallow, pigment +	
Normal		Minus	....	SPLEEN	Plus	Large or small.	
Large, especially fatty cortex, pigment layer usually +.....		Plus	..	SUPRA-RENAL	Minus	Small, with narrow cortex, pigment usually absent.	
Small		Minus	....	TESTES	Plus	Large.	
Normal or large		Plus	..	THYMUS	Minus	Small or very large.	
Small, often deficient		Minus	..	THYROID	Plus	Large, often ++	
Large, often myomatous.....		Plus	..	UTERUS	Minus	Small.	

HERBIVOROUS.		TABLE XII.		PHYSICAL.		CARNIVOROUS.	
May be large throughout		Minus	..	ABDOMEN ..	Plus	Prominent only below umbilicus.	
		Minus	..	ADAM'S APPLE	Plus	Prominent.	
Never in this type.....		Minus	..	ASTHENIA ..	Plus	Also neurasthenia, myasthenia, etc.	
Large		Plus	..	ANKLE	Minus	Small.	
Broad, flat		Plus	....	BACK	Minus	Narrow, round.	
Heavy		Plus	....	BONE	Minus	Light.	
Normal or large from congestion...		Minus	..	BREAST	Plus	Absent or large and pendant.	
Rounded		Minus	..	CHEEKBONE ..	Plus	Prominent.	
Square		Plus	....	CHIN	Minus	Pointed, long or short.	
Usually good		Plus	..	CIRCULATION	Minus	Usually bad, extremities frequently cold and often purple in color.	
Wide		Plus	..	COSTAL ANGLE	Minus	Very narrow.	
Thick, wide, simple.....		Minus	....	EAR	Plus	Thin, long, convoluted.	
Thick, short		Minus	..	EXTREMITIES	Plus	Thin, long.	
Far apart.....		Plus	....	EYES	Minus	Close together.	
Often excessive.....		Plus	....	FAT	Minus	Usually deficient.	
Short, wide.....		Minus	..	FINGERS ..	Plus	Long, tapering.	
Short, wide.....		Minus	..	FOOT	Plus	Long, tapering.	
Usually square.....		Plus	..	FOREHEAD ..	Minus	Often receding.	
Wide, often square.....		Minus	....	HAND	Plus	Long, tapering.	

TABLE XII. (Continued.)

HERBIVOROUS.		PHYSICAL.		CARNIVOROUS.
Normal, round, square or sugar-loaf	Plus	.... HEAD	Minus	Long, large, rarely microcephalic.
Short, thickset.....	Minus	.... HEIGHT....	Plus	Tall, lanky.
Often very large.....	Plus	.... HIPS	Minus	Usually small.
Often emphysematous.....	Plus	.... LUNGS	Minus	Often atelectatic.
Heavy, short, thick, muscle belly long and tendon short.....	Plus	... MUSCLES ...	Minus	Slender, long, thin, muscle belly short and tendon long.
Short, thick, muscles heavy.....	Minus	.... NECK	Plus	Long, thin, muscles slender.
Short, wide, flat.....	Minus	.... NOSE	Plus	Long, thin, prominent.
Arch low.....	Minus	... PALATE...	Plus	Arch high.
Wide, flat, rigid.....	Plus	.... PELVIS ...	Minus	Small, round, flexible.
Usually slight.....	Minus	.... PIGMENT...	Plus	Often excessive.
Usually acquired if present.....	Minus	... PTOSIS ...	Plus	Usually present, often congenital.
Normal, flat.....	Minus	... SCAPULAE ..	Plus	Angel wing.
Heavy, wide, square.....	Plus	... SHOULDERS ..	Minus	Usually narrow, sloping.
Thick, pink, moist.....	Plus	.... SKIN	Minus	Thin, sallow, dry.
Abundant, odorless, alkaline.....	Plus	.... SWEAT	Minus	Scanty, offensive, acid.
Full, tubular, barrel-shaped.....	Plus	... THORAX ...	Minus	Flat, peg-top.
Seldom small.....	Plus	.... WAIST	Minus	Often very small.
Often excessive.....	Plus	... WEIGHT ...	Minus	Usually deficient.
Thick	Plus	.... WRIST	Minus	Thin.

TABLE XIII.

HERBIVOROUS.		REPRODUCTIVE.		CARNIVOROUS.
Normal or large from congestion...	Minus	.... BREAST	Plus	Absent or large and pendant.
Small, seldom cystic.....	Minus	.... OVARY	Plus	Large, cysts frequent and may be of great size.
Small	Minus	.... PENIS	Plus	Large.
Hypertrophied frequently.....	Plus	.. PROSTATE ..	Minus	Small.
Labor often difficult; pelvis rigid, flat	Minus	REPRODUCTION	Plus	Labor usually easy; pelvis flexible, round.
Small	Minus	.... TESTES ...	Plus	Large.
Large, frequently myomatous.....	Plus	... UTERUS ...	Minus	Small.

TABLE XIV.

HERBIVOROUS.		SKELETAL.		CARNIVOROUS.
Hypertrophic	Plus	.. ARTHRITIS ..	Plus	Atrophic.
Heavy	Plus	.... BONE	Minus	Light.
Wide	Plus	COSTAL ANGLE	Minus	Narrow.
Wide	Plus	COSTO-VERTEBRAL ANGLE	Minus	Narrow.
When present, usually occurs in this type	Plus	LUMBO-SACRAL JOINT INVOLVEMENT	Minus	
Wide, rigid, flat.....	Plus	.... PELVIS ...	Minus	Narrow, flexible, round.
Heavy, wide	Plus	VERTEBRAL PROCESSES	Minus	Light, narrow.
	Minus	SACRO-ILIAC JOINT INVOLVEMENT	Plus	When present, usually occurs in this type.
Heavy	Plus	. VERTEBRAE .	Minus	Light.

THE ROENTGEN DIAGNOSIS OF GALL-STONES BY IMPROVED METHODS.

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Up to about three years ago gall-stones were detected by the Roentgen method of examination in such a small percentage of the suspected cases that most Roentgenologists, including ourselves, did not recommend the examination, and made it only when urged to do so. Several of us found, however, that gall-stones containing calcium could be detected much more frequently

than we had supposed, and this discovery stimulated the search for them. As yet, only a few Roentgenologists had published reports on gall-stones.¹ In 1913, however, four observers reported almost simultaneously that gall-stones could be detected Roentgenographically in from 50 to 70% of the cases in which they were really present.² This estimate of the percentage of gall-stones was obtained in two ways. Case reported detecting 50 in 1000 cases. Cole reported detecting 20 in 499 cases. As these observations were made during about the same period, and each reported independently of the other, it was significant that the percentage was almost identical in the two reports.

It is a well recognized fact that gall-stones are found in 10% of all adult cases submitted to post-mortem examination, and as we were able to detect them in 5% of the cases in a routine

gastro-intestinal examination, we therefore concluded that we could find them in about one-half of the cases where they were present.

Pfahler estimated that he could detect gall-stones in 74% of the cases, which according to him, was 24% more than could be obtained by other Roentgenologists.

His percentage was based on 29 cases operated on for gall-stones, in 27 of which stones were found. He had reported findings in twenty of these, but had been unable to detect them in seven where they existed, and in two cases he had reported probable stones wherein no stones were found,—a record of nine erroneous diagnoses.

Therefore, what Pfahler really reported was 31% of erroneous diagnosis, rather than a percentage of accuracy.

When stones are detected by Roentgen methods, an operation for their removal is almost universally assured, and unless there are errors in interpretation, the stones are found. But if no stones are found through these methods, the operation is not so likely to be performed, and of this case one has no knowledge of whether or not stones are present. Therefore such a method of estimating the percentage is not accurate.

A series of cases might be examined, however, in the manner employed by Brewer and Cole,³ in gastro-duodenal lesion, viz: If by using all other methods combined, the surgeon determines that gall-stones are present, he will operate for them regardless of the Roentgen findings. The Roentgenologist makes his examination, making a definite negative or positive diagnosis exclusively on the Roentgen findings and the operation, and then compares the findings. This method of estimating would give one an accurate percentage of the cases that are detectable by Roentgen rays.

Among the Roentgen plates exhibited at the last meeting of the Roentgen Ray Society, George showed 15 cases of gall-stones, each presenting faint shadows of the calculi. Some of these were so indistinct that even a keen observer would have failed to detect them, and Cole was even doubtful of the significance of the shadows in some cases, although in a previous communication,⁴ he himself had described and attempted to illustrate an article on gall-stones with two or three similar Roentgen plates.

Since we have paid close attention to the gall-bladder region in the routine gastro-intestinal examinations, studying the cases observed by this method, and reviewing previous Roentgen plates of the gall-bladder, much valuable information has been obtained which has led us to believe that we can detect stones at least twice as frequently as before. After having considered that we detected them in 50% of the cases, it would now appear that we can show them in all cases where they are present.

One of the writers (Cole) now believes that far more than 10% of the cases presenting themselves for a Roentgen examination of the stomach

and the gall-bladder region, have gall-stones, and therefore that one is not justified in estimating the percentage of detectable gall-stones in the manner previously employed by him and Case. Having once made this error, Cole hesitates to base the percentage of detectable gall-stones on anything less than such a test as that employed by Brewer and Cole on gastro-duodenal lesions. But we believe this method is sufficiently accurate to justify a careful Roentgen examination of every patient over forty, who complains of gall-bladder or gastric symptoms.

A positive Roentgenologic diagnosis can be made in such a large number of the cases where gall-stones are present, that the negative diagnosis has become far more important than it was previously considered to be.

The technic is not radically different from that employed for soft tissue detail in any other part of the body; but it requires conscientious attention to the most minute points, and one must not be satisfied with the Roentgen plates, unless detail is shown to the greatest possible degree. Roentgen plates obtained by improved technic, show extraordinary detail; in two cases even the pelvis of the kidney, the blood-vessels going to and from it, and the upper part of the ureter were remarkably distinct.

Our opinions differ as to the advisability of catharsis prior to the examination. One of the writers (George) considers that the gas usually resulting from a cathartic is a more disturbing factor in the interpretation of the Roentgen plate than the fecal content of the colon. This, he thinks, may aid in determining the location of the gall-bladder. His colleague (Cole) on the other hand, thinks that a thorough catharsis and total abstinence from food for twelve hours prior to the examination is very essential; also that the gas in the colon often serves to accentuate the calculi, and in a previous communication,⁵ he has advocated the artificial injection of air into the colon in some doubtful cases as a means by which shadows of gall-stones may be accentuated or identified.

The use of the Coolidge tube enables one to obtain an accuracy of penetration which is unattainable with a standard tube. Roentgen plates showing brilliant bone detail with considerable density of the soft parts are not desirable for the diagnosis of gall-stones. Soft "monotonic" Roentgen plates obtained with the Coolidge tube, are deprecated by some critics because marked contrast in the bony structure is lacking; but they show remarkable gradations in the soft tissue—a result for which one strives when in search of gall-stones.

Minor condemned fine Roentgen plates of the lungs as compared with the fluoroscopic image, because they showed so much detail in the soft parts as to make them difficult to interpret. It is the interpretation of these very details that increases the accuracy of diagnosis, whether it

be the chest or gall-bladder that is under consideration.

One of the co-authors herein (Cole) strives to obtain this detail by using a small focal point tube of a penetration just sufficient to cast an image on the screen beneath the patient, and makes the exposure long enough to obtain the desired density of the Roentgen plates, whilst his colleague, (George), considers speed an important factor, and uses a fairly large focal point with varying penetration, making the exposure so short that it practically eliminates the effect of the involuntary motions of the body, particularly gastric and intestinal peristalsis and pulsations of the blood vessels.

The necessity of using an extremely small cone, showing only a limited area in each Roentgen plate is strongly emphasized. The length of the cone is not an essential factor. By means of such a cone secondary rays are generated in the patient to a much less degree, and the fogging effect being proportionately diminished it is then possible to show distinctly a calculus that would be quite invisible if a large or moderate sized blend were used. The cone may be pointed obliquely downward, so that the axis of the rays is parallel with the under surface of the liver. When this is done, the under surface of the liver appears as a clear cut and well defined line; and the gall-bladder, if normal, can usually be detected, or the relation of the patient to the tube may be altered by a slight rolling from side to side. Sometimes, particularly when the gall-bladder is high, a lateral position will show the gall-stones against the background of the liver.

It matters very little whether screened or unscreened plates are used. Some plates may be made with screens, and some without them. The unscreened plates should be exposed face to face, and slightly undertimed, with a view to matching up the shadows thereon after development. Double screened plates also may be made in a special holder, constructed to carry screens of different rapidity. Two plates and two screens of different speed are used in the same holder. The plates are placed back to back. The under one face down, lies against a fast screen, whilst the upper one lies face upward against a relatively slow and thin screen. A very short or even undertimed exposure is made, and after development the plates are superimposed and matched together, whereupon by transmitted light one gets the plastic effect up to a certain point. This method eliminates screen and plate defects to a great extent.

Roentgen stereoscopy adds very materially in the interpretation of the Roentgen plates. Four exposures may be made, preferably with each exposure on the two plates face to face, giving a slight lateral shift to the tube between the first and second exposures. Then move the tube down about two inches and make two more exposures, shifting the tube once more in the lateral direction between the third and fourth. In this manner, one can stereoscope the various exposures

with each other, that is to say, 1-2 and 3-4 stereoscoped with each other laterally; and 1-3 and 2-4 stereoscoped with each other vertically.

Comparison from behind avails little; but small areas may be brought close to the plate for detailed examination, by the use of a circular plate-holder about the size of the end of a small compression blend. This holder, with or without a screen, may be pushed up under the edge of the rib, thereby materially diminishing the thickness of that part of the abdomen.

The entire region from the eleventh rib to the crest of the ileum or even lower, should be included in the examination. As repeated exposures are required, and as some of the plates are not screened, the total exposure is considerable, and a filter should always be used to prevent dermatitis. If after careful study of at least fifteen or twenty Roentgen plates of the gall-bladder, no evidence of the calculi is found, the patient should be submitted to an examination of the stomach, duodenum, and colon, in a search for adhesions from cholecystitis without stones, or for the purpose of differentiating this condition from post-pyloric ulcer and appendicitis with reflex gastric symptoms.

Even when there is direct evidence of the stone, this additional information is of great value in determining whether or not there is a concomitant lesion, whether or not surgery is indicated and how difficult the operation may be.

Although the technic herein described greatly facilitates the interpretation of the Roentgen plates, gall-stones may be detected in the ordinary Roentgen plate, in a large percentage of cases if one is familiar with their Roentgenographic appearance.

Of late, a re-examination has been made of those Roentgen plates taken during the last four or five years in which direct evidence of gall-stones was insufficient or undetected, but which showed enough evidence of adhesions from the accompanying cholecystitis to justify surgical procedure. In the re-examination, our increased knowledge of the Roentgenologic appearance of soft gall-stones has enabled us to detect direct evidence of the calculus on the Roentgen plate, in a large number of cases where calculus was found at operation.

The same results have been obtained from a re-study of those cases where the gall-bladder only was examined, and a negative diagnosis was made. The gall-stones found at operation in these patients can now be identified in the original Roentgen plates. The evidence was there before, but we were then unable to recognize it.

Of all the aids to be suggested for detecting calculi, the method of matching together the shadows by superimposing one Roentgen plate over another, as described in a previous communication,⁶ is probably the most important. By far the best illumination can be obtained by holding the plate obliquely at an arm's length

against the northern sky. A concave lens or better still a pair of opera glasses used in the reverse direction, will accentuate contrasts. For examining a small area, a magnifying glass may be helpful, especially in identifying the faceted side of small calculi.

A lantern slide made of superimposed Roentgen plates, will sometimes accentuate the contrast and bring out details not observed in the original plates. Thus very faint shadows may sometimes be shown well enough for lantern slide demonstration or reproduction; whereas others cannot be demonstrated or reproduced for publication, because the shadows concentrated on the slides are diffused by enlargement.

Identification of the gall-bladder aids materially in the detection of calculi, and is a detail which one should always try to obtain. It can be detected in nearly every case where it exists, normal in size or dilated. The gall-bladder may be found anywhere from the region of the eleventh rib to the fifth lumbar vertebra. In one case, it was located as far down as the sacrum. As a rule, it will be seen below the lower border of the liver. If, after taking a number of Roentgen plates, the gall-bladder is not found in the normal position, it can sometimes be located when a subsequent bismuth examination is made, by noting the position of the transverse colon.

Roentgenographically, gall-stones are divided into two definite groups: (1) Stones which contain considerable calcium, and (2) Cholesterine stones which contain no calcium, or only a trace of it. Gall-stones containing a large proportion of calcium can be shown without much difficulty and are sometimes so dense as to be mistaken for renal calculi.

The dense calcareous gall-stones are a type of calculi infrequently found; this perhaps explains why the study of gall-stones has made little advance since they were first observed. By far the greater number of gall-stones consist of cholesterine nucleus, with a calcareous coating, or *vice versa*. When the peripheral concretions are thin, which is true in about 50% of the cases, the stones are difficult to detect. With increasing density of the coating, the ring-like appearance is proportionally more marked and relatively easier to discover; but it is probably safe to say that the absolutely pure cholesterine stone is a rare entity⁷.

Unless unusual care is used in making and interpreting Roentgen plates, cholesterine stones containing only a trace of calcium will be entirely overlooked in the future, just as they have escaped observation in the past. It is not the shadow producing quality of the stone as a whole that concerns us in this class of case, but rather the shadow cast by the long diameter of the periphery of the stone. Whether the stone be faceted, spherical or a combination of both, on some particular diameter there will be sufficient density to cast a peripheral shadow. This explains in part why a single Roentgen plate

of a series will often reveal a perfectly characteristic gall-stone, whereas all previous plates of the same region show only questionable shadows. If each individual stone in a mass of small stones does not cast a well-defined shadow, the shadow of the entire mass will often give the clue.

The interpretation of suggestive shadows in the region of the gall-bladder is fraught with difficulties, similar to those experienced when positive diagnosis of kidney stones was first attempted. The present accuracy in diagnosing renal stones is the result of experience gained through numerous errors. Some of the disturbing factors in the gall-bladder region, such as intestinal contents, calcified mesenteric glands, costo-chondral ossification, and stones in the kidney and liver, have been enumerated in previous articles.⁸ Recent experience has added to our knowledge of possible pitfalls. Food in the cap is a particularly confusing finding, because its density corresponds to the faint shadow of a stone, and its size and position add to the illusion. Upon minute examination, however, it will be found that the shadow of food in the cap lacks the ring-like circumference of the cholesterine stone with a calcareous shell; neither has it the homogeneous character of the calcium stone, but is rather mottled in appearance. Moreover, it is usually possible to completely identify the shadow by tracing the outlines of the adjoining pars pylorica. Where the shadows are obscure several Roentgen plates matched together, will increase the density. A disturbing element of the same character is food contained in a single haustrum of the colon at the hepatic flexure. Being broad at one end and tapering to a fine point at the other end, it resembles an almond-shaped calculus. Abstinence from food eliminates results from this error.

Another interesting finding, and one which is visible only to the eye trained to pick up the slightest variation in density, is the presence of little rings, often no larger than a good sized pinhead, sometimes found in groups, sometimes isolated, in varying shapes of round, oval, or even quite irregular form. It is quite possible that these infinitesimal findings are the walls of bloodvessels seen in cross section.

It is a mistake to study Roentgen plates when they are wet, not only because reflected light cannot be avoided, but also because there is risk of damaging the plate.

A careful study of the clinical history of cases in which gall-stones are definitely shown by Roentgen methods, reveals the futility of expecting the classical gall-bladder symptoms to agree with the Roentgen diagnosis.

Before the advent of the x-ray, renal colic and renal calculi were considered almost synonymous terms. But surgical procedure for renal colic in cases where no calculus was shown on the Roentgen plate, eventually proved that only about one fourth of the cases having typical attacks of renal colic had a calculus of suffi-

cient size to be found by surgical exploration. On the other hand, only about one fourth of the cases in which kidney stones were definitely demonstrated by Roentgen methods, had anything simulating renal colic.

Our present experience indicates that the same observation will hold true in the gall-bladder region: that only when a gall-stone passes or engages does it cause the typical gall-stone colic, and this is relatively rare compared with the frequency of gall-stones.

The clinical indications of cholecystitis compare with those of pyelitis, except that one does not detect the presence of pus in the stools as readily as he detects it in the urine. Some of the cases of gall-stones give practically no characteristic symptoms of gall-stones, but are associated with obscure gastric or neurotic symptoms.

Therefore, any case presenting gastro-intestinal symptoms with absence of Roentgen evidence of an organic lesion of the stomach or intestines, should be submitted to a careful Roentgen examination of the gall-bladder. This is particularly true if, as Deaver suggests, the patient is "fair, fat and forty, and belches gas."

It is much easier to detect the stone in this class of case, than in thin, wiry, poorly nourished people who have no fat to outline the gall-bladder, and whose muscle is nearly as dense as bone. In persons under twenty-five, the peripheral coating of the stone is not usually dense, and the stone is so soft that it does not show even a dim peripheral ring or edge. Post operative cases with extensive adhesions, carcinoma of the liver or gall-bladder, and ascites also render negative diagnosis exceedingly difficult if not impossible.

Diagnostic accuracy is directly in proportion to the care exercised in making the examination, and one's experience in detecting and interpreting the findings. Statistics are of little value until thousands of cases have been observed by methods as careful and detailed as those described above. By that time the value of the method will be generally acknowledged, and statistics will not count for any more than they do now in cases of renal calculi or fractures.

The Roentgen method of diagnosing gall-stones has become so accurate that if there is no direct Roentgen evidence of gall-stones, or indirect evidence of adhesions involving the stomach, cap, duodenum, or colon, as a result of cholecystitis, the surgeon should have a preponderance of clinical evidence as a warrant in operating for gall-stones.

RESUMÉ.

1. Until within three or four years, gall stones were rarely detected by Roentgen rays.
2. During the last few years several Roentgenologists, including ourselves, consider that they have detected gall-stones in about 50% of

the cases examined. This was estimated in different ways by different men.

3. Experience has shown that gall-stones may be detected about twice as frequently as formerly by: (a) A special technic for making the Roentgen plates; (b) A minutely careful study of the Roentgen plates by various methods; (c) A thorough intimacy with the Roentgenographic appearance of gall-stones.

4. By applying the new method of interpretation, gall-stones have been detected on many Roentgen plates made by the old technic, and formerly diagnosed as negative.

5. By means of the special technic for making and interpreting Roentgen plates, a positive diagnosis may be made in so many cases, that the negative diagnosis has become of considerable significance.

6. Much care and study will be necessary to properly interpret the additional detail which can be obtained by the special technic, and undoubtedly some erroneous diagnoses will be made. (Cole has made two such erroneous diagnoses in the last month, and has thereby learned to differentiate the food in the cap and the feces in the haustra of the colon from evidence of calculi.)

7. If there is no direct Roentgen evidence of gall-stones, the stomach, cap, duodenum and colon should be examined for adhesions from an accompanying cholecystitis.

8. If there is no direct or indirect Roentgen evidence of gall-stones, the clinical history should be more characteristic than usual before one resorts to surgical procedure.

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A STUDY OF THE EFFICIENCY OF MIXED TOXINS (COLEY) IN INOPERABLE SARCOMA. A CRITICAL ANALYSIS OF 134 MICROSCOPICALLY PROVEN CASES.

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IN the BOSTON MEDICAL AND SURGICAL JOURNAL of August 13, 1914 (Vol. clxxi, pp. 253-261), I published a paper based upon observations made during the past five years upon 91 cases treated with mixed toxins of erysipelas and bacillus prodigiosus.* Some of these cases were under treatment too short a period to be of value in determining the efficiency of the toxins. Some were early cases in the series in which the doses were too small. Some cannot be traced by letters, visits to former homes, state or city records. Some were cases in which no pathological report was obtained. Some were cases of microscopically proven carcinoma. Some were cases of proven sarcoma in which toxins were administered as a prophylactic against recurrence after operations which might of themselves have cured (amputations without demonstrable metastases, etc.). Obviously in a critical analysis to determine the efficiency of toxins in the treatment of sarcoma such cases were excluded. There remained 32 cases. These were analysed; first, according to the type of sarcoma, and second, according to the anatomical situation and tissue of origin. These 32 cases were all primary or recurrent inoperable sarcoma, or cases in which the disease could not be eradicated by operation. All were proven by microscopic examination. All were under treatment at least three weeks. In all cases the results were free from vitiation by concurrent treatment (x-ray, radium, arsenical preparations, etc.). All living cases had been seen or heard from within three months.

The purpose of this study was to determine, if possible, the type or types of cases in which this treatment offered expectation of benefit. Obviously the answer to this question obtained by an analysis of so small a series of cases could be only suggestive. Despite many failures the most rigorous criticism of certain hopeless inoperable cases in which growths have permanently disappeared and no metastases have occurred must admit apparent cure attributable either to the toxins or to spontaneity. Factors are concerned of which we have no knowledge, and spontaneous cures have doubtless occurred. The percentage of apparent cures occurring with the use of toxins seems, however, too large to attribute to spontaneity. On account of a comparatively small percentage of most encouraging results an effort has been made in this paper

* I wish to express my appreciation to members of the staff of the Massachusetts General Hospital through whose courtesy this study was made possible.

to assemble a larger series of cases of sarcoma treated with the toxins in order to make more trustworthy deductions regarding their efficiency. To this end there have been added to my previously reported cases a few personally treated since the former publication and certain cases reported by Dr. Coley which have conformed to the criteria adopted in my earlier paper. Dr. Coley kindly sent me a copy of his address before the Third International Conference of Cancer Research held at Brussels in August, 1913. His monograph may be divided into five parts, viz.: the use of mixed toxins in inoperable sarcoma (81 cases), their use as a prophylactic after operations (9 cases), their use in inoperable carcinoma (8 cases), their use in the hands of other men (12 cases), and a tabulation of 125 cases also treated by other men. Our present inquiry is not concerned with use of the toxins in carcinoma nor as a prophylactic after operation. All of the other cases, 218 in number, have been abstracted and tabulated, as far as possible, after the manner of my own cases. Dr. Coley's recent paper on Sarcoma of the Long Bones in the *Annals of Surgery*, (1914, vol. lx, Nov., pp. 537-566) contains four cases not included in his Brussels address. These have been added, making a total of 222 cases. The data recorded has been, name or number of patient, age, sex, occupation, clinical diagnosis, duration of disease before operation or toxin treatment, history of trauma or irritation, nature of operation, interval between operation and toxins, size of growth before operation, size of growth when toxins started, site of injections, pathological diagnosis, tissue of origin, duration of treatment, maximum dose, character of reactions, effect of toxins on size and consistency of the growth and on pain, remarks of interest, and end result.

Only those cases in which data are given, which conform with the criteria adopted for an analysis of my own cases, have been selected for this series. In other words, all cases must have been proven by microscopical examination; all must have been primary or recurrent inoperable sarcoma, or cases in which the disease could not be eradicated by operation; all must have been under treatment at least three weeks; all must have been free from concurrent treatment (x-ray, radium, arsenical preparations, etc.). Of the 222 cases which have been abstracted 100 have been chosen as suitable for this analysis. Perhaps I have been very critical and have excluded cases which by others might have been judged worthy of consideration. The question is vital. The toxins have merit but the treatment is distressing. I believe, therefore, that conclusions furnished only by most rigorous criticism should be accepted.

Following the plan pursued in my previous paper I have arranged the cases in six groups determined by the effect of the toxins.

Group A includes those cases in which there was no appreciable effect. There were 12 cases.

Group B. includes those cases in which the growths softened but did not appreciably diminish in size. This softening may be fairly attributed to the toxins rather than to increased vascularity and cellularity associated with rapid growth; for it occurred at the site of the injections. There were 5 cases.

Group C includes those cases in which growths disappeared or practically disappeared, but returned. There were 20 cases.

Group D includes those cases in which growths disappeared but metastases simultaneously occurred. There were 10 cases.

Group E includes those cases in which growths diminished in size but still persisted. In this group have been included those cases in which inoperable masses have been so reduced that operations have subsequently been performed. A very few cases of this description have shown upon pathological examination no remaining trace of sarcoma. Such cases, in which the pathological reports have been made by pathologists of repute, have been included in Group F, apparent cures.

Growths treated with mixed toxins may disappear either by undergoing marked necrosis (becoming soft and fluctuant), by what appears to be simple absorption (probably the same process as the first but absorbing as fast as broken down so that no fluctuant tumor occurs), or by acute inflammation followed by resolution with a resulting fibrous mass. The latter process has been demonstrated microscopically in a series of photomicrographs in my previous paper.* A period of inflammation is followed by one of young connective tissue and blood vessels resulting eventually in fibrous tissue. The tumor in such cases is destroyed by an inflammatory process. With this microscopical evidence it seems fair to consider such cases apparent cures. All other cases with residual masses that have not been examined microscopically have been included in Group E. There were 14 cases.

Group F includes those cases which are apparent cures in which growths have disappeared and no metastases have occurred. There were 73 such cases.

Again following the plan pursued in my previous paper these 134 cases have been analyzed; first, according to type of sarcoma, and second, according to the tissue of origin or anatomical situation.

TABLE I.

ANALYSIS OF CASES ACCORDING TO TYPE OF SARCOMA.

Group	A	B	C	D	E	F	Totals
Spindle cell.....	2	1	5	1	1	22	32
Fibro sarcoma ..	2				3	4	9
Round cell.....			4	1	4	14	23
Small	1	1	8	2	2	13	27
Large	3		1	1	1	6	12
Melanotic				5		1	6

Giant cell.....	1	1			1	11	14
Mixed cell.....	3	2	2		1	5	13
Leiomyoma					1	1	2
Angiosarcoma					1		1
Hypernephroma ..						1	1
Totals.....	12	5	20	10	14	73	134

In Table I* is shown an analysis according to the type of sarcoma.

Spindle Cell Sarcoma. It so happened in my previously recorded cases that the pathologists' reports indicated the type of spindle cell, small or large. This distinction was, therefore, made in the previous analysis. It was interesting to note that of the three cases of each type there were no apparent cures of the small cell type, whereas there was one of the large cell type. This distinction of the size of cell may not be important. It is seldom made in Coley's case reports. In this present analysis, therefore, both have been assembled under the head spindle cell. The term fibrosarcoma, however, has been retained. Of the former there appears 22 apparent cures, of the latter four; a total of 26 cases, that is, about 36% of the total number of apparent cures.

Round Cell Sarcoma. In my previously reported cases a differentiation between small and large round cell cases was made. This has been followed, as far as possible, in this series. In a considerable number this distinction is not made, so the general term round cell has been used. The apparent cures include 14 cases of round cell, 13 cases of small round cell, and one case of large round cell; a total of 28 cases or about 39% of the total number of apparent cures. I am interested to note only one apparent cure of large round cell type. In my previous paper I made the observation that of about an equal number of cases of each type there were no apparent cures of the large cell type, whereas there were two of the small cell type. This larger series apparently substantiates this observation. The treatment of inoperable round cell sarcomata with mixed toxins, therefore, offers reasonable expectation of benefit, especially the treatment of the small round cell type.

Melanotic Sarcoma. In the previous series of cases it was observed in cases with multiple melanotic growths that individual tumors might be destroyed but coincident with this local benefit untreated tumors were increasing in size and new metastases were forming. All cases fell in Group D. One case, however, in which the treatment of a single large melanotic growth was undertaken lived for two years and two months. This case was given the largest single dose I have seen recorded, 52 minims. He displayed great tolerance for the toxins. The prognosis appeared favorable, as previously reported, until a spree of nineteen days was indulged in. After

* I am indebted to Mr. E. S. Brown of the pathological laboratory at the Massachusetts General Hospital for his care and skill in the production of these pictures.

* In the tables both my successes and my failures have been recorded. The full title of Coley's Brussels address, however, shows that he wished principally to set forth cases successfully treated. Some failures, however, were included. These tables, therefore, cannot be accepted as showing the proportion of failures and successes.

this his tolerance was greatly diminished so that only a dose of 4 or 5 minims could be given and metastases in various tissues appeared in quick succession.* I was led to state that the toxins offered no expectation of benefit in cases of multiple melanotic growths but that they might be legitimately tried in cases with single melanotic growths. It is interesting to note in this larger series that five of the six cases fall also in Group D and that the other case, that of Dr. Greenwood of Leeds, England, was a single large growth. This case is an apparent cure, the only cure of a melanotic case that has come to my notice. These facts seem curiously to substantiate the conclusions previously made from observations of a smaller series of cases.

Giant Cell Sarcoma. There is much disagreement at present regarding the nature of these growths. Certain pathologists and surgeons maintain that they are true malignant tumors, i.e. capable of forming metastases (Coley, Eve, Maybury). Others admit that such growths are prone to recurrence but deny them malignancy in the sense of forming metastases. The name giant cell tumor (Bloodgood), instead of giant cell sarcoma, has, therefore, been suggested. Again Barrie, of New York, believes that the process is only inflammatory, an osteomyelitis. Without discussing these opinions it is true that many cases of this condition can be cured by one or more curettings or resection. Other cases on account of size or situation may require amputation. Still others, probably the smallest group, cannot be cured by surgery alone. I refer in particular to more or less extensive involvement of the vertebrae. In considering growths originating in the medullary cavity of bone it is to be remembered that some may arise from endosteum and others from marrow elements. It is to be remembered that osteoclasts are present and these, I believe, may be regarded as foreign body giant cells of endothelial origin. The presence of some giant cells in medullary tumors is, therefore, to be expected. It is to be remembered that some of these tumors remain limited to bone. They may be expansile but for a long period remain localized. Spontaneous fractures may occur and heal. This class may be regarded as one type of bone cyst and considered myxomata. We are all familiar with another type which more quickly ruptures the bone, invades the soft parts, grows with great rapidity, often to considerable size, and not infrequently causes death. In selecting cases for this series I have had this type of case in mind. The term giant cell sarcoma has, therefore, been retained. Finally these medullary growths do not, in the majority of cases at least, conform with the condition commonly called osteomyelitis.

In my previous series were reported four cases which it seemed fair to regard as giant cell sarcomata. Two of these were apparent cures.

* A detailed account of this case with photographs and photomicrographs is given in the BOSTON MED. AND SURG. JOUR., 1914, Vol. clxxi, No. 7, August 13, 1914.

There have been added in this series ten cases including nine apparent cures, making a total of eleven apparent cures. The character of these cases, as shown in the case epitomies at the end of the paper, will, I believe, justify the use of mixed toxins in selected cases. Certain cases are appropriately treated by one or more curettings, others by resection, and still others on account of their size or situation by amputation. The records seemed to justify a preliminary trial of toxins in carefully chosen cases in which slowly growing tumors have ruptured more or less extensively into the soft parts rather than the immediate sacrifice of the limb. If such treatment is practised, the patient should understand that amputation may ultimately be necessary, and it should not be long deferred in the advent of increased rapidity of growth, repeated hemorrhages, considerable absorption, or superimposed infection. By this method with skilful judgment a few limbs apparently have been saved.

A small group on account of anatomical situation (more or less extensive involvement of the vertebrae) defy surgical eradication. These, I believe, should be submitted primarily to surgical attack, followed immediately by toxin treatment. The records justify the use of the toxins in such cases.

Mixed Cell Sarcoma. Under this head have been assembled cases with pathological returns of osteosarcoma, spindle cell osteosarcoma, chondrosarcoma, osteochondrosarcoma, etc. It has never been my good fortune to benefit with the toxins any cases of this class. This series, however, shows five apparent cures, viz: mixed cell tumor of the parotid, round and spindle cell sarcoma of the uterus, chondrosarcoma of the ilium, round cell osteosarcoma of the humerus and scapula, and spindle cell osteosarcoma of the superior maxilla.

There remain in Table 1 three cases, a leiomyoma, an angiosarcoma, and a hypernephroma, epitomies of which appear at the end of the paper. The first case (No. 56) was a leiomyoma of the uterus for which hysterectomy was performed. Within a few months the entire pelvis was filled with an inoperable recurrence of hard consistency and irregular outline, apparently involving the bladder. Mixed toxin treatment was instituted. The mass became smaller, softer, more movable, and pain ceased. Treatment was continued with periods of rest for about three years. Three years, eleven months later the patient was in excellent health and local examination showed only slightly more scar tissue than would be expected after an hysterectomy. This was apparently a case of malignant leiomyoma. I have at present under treatment a somewhat similar case referred by Dr. W. J. Mixer. A hysterectomy had been performed for fibroids. Tumors subsequently appeared on the back and paralysis of the legs ensued. Dr. Mixer removed as far as possible a growth involving the vertebrae, complete eradication was impossible. The patient is now able to walk with assistance.

Toxin treatment was instituted immediately after operation and has been continued for two months. Pathological reports: 1. Tumor over sacrum, probably leiomyoma; 2. Tumor on right shoulder, leiomyoma; 3. Specimen removed at operation on spine, spindle cell sarcoma. It is too early to predict the outcome but the course has been so far favorable.

The second case (No. 33) was a thrice recurrent angiosarcoma of the breast. Toxin treatment was instituted when the mass extended laterally from the sternum to the anterior axillary line and from the clavicle above nearly to the costal border below. It was fixed to the chest wall and composed of markedly protuberant nodules and considerably ulcerated. Mixed toxin treatment for eight months caused softening and progressive decrease in size. The mass was then operable and was excised. No pathological report is given but the patient was seen eight years later without evidence of recurrence. This case has been recorded in Group E.

The last case (that of Mr. Cornell of Sheffield, England) was a woman of 37 upon whom a transperitoneal nephrectomy was performed for hypernephroma. In four months toxin treatment was started for a huge recurrence and continued for four and a half months with entire disappearance of the tumor. A year later she was seen in excellent health without evidence of recurrence.

TABLE II.

ANALYSIS OF CASES ACCORDING TO ANATOMICAL SITUATION AND TISSUE OF ORIGIN.

Group	A	B	C	D	E	F	Totals
Nose and sinuses...			2			6	8
Tonsil		1	4			2	7
Parotid			1		1	3	5
Pharynx	1		1				2
Cervical glands...		(1)	4	(6)	1	(2)	7(4)
Chest wall.....		(1)	(1)		1	1	2
Breast			1		1	1	3
Abdominal wall...						7(2)	7
Axilla				1	(1)	1(3)	2
Groin				(1)	1	2	3
Intra-abdominal ..	(7)		1		1	4(2)	6
Pelvis	1		(1)			1(2)	2
Uterus					2	3	5
Ovary		2			1	1	4
Kidney					1	2	3
Bone (not giant cell)	5	2	2	2	3(1)	13	27
Giant cell	1	1			1	10(1)	13
Fascia and muscle.	3	1	2(1)		1	5(2)	12
Skin and subcu....					5	3	8
Nerve sheath						1	1
Orbit				1			1
Sperm. cord	1						1
Totals	12	5	20	10	14	73	134

ANALYSIS ACCORDING TO ANATOMICAL SITUATION AND TISSUE OF ORIGIN.

In Table 2 is shown an analysis of cases according to anatomical situation or tissue of origin. It was rather striking in my previous analysis to note that five of six intranasal and nasal accessory sinus cases were apparent cures.

The others fell in Group C, the growth practically disappearing but recurring. Two cases have been added in this series and it is interesting that one is an apparent cure, and the other falls in Group C. These six apparent cures include fibrosarcoma of the septum and ethmoid, giant cell sarcoma of the antrum and superior maxilla, large spindle cell sarcoma of the ethmoid, small round cell sarcoma of the antrum and ethmoid, small round cell sarcoma of the antrum, ethmoid, superior maxilla, posterior septum and nasopharynx, and spindle cell sarcoma of the ethmoid, superior maxilla and frontal sinuses. The case epitomies show the extent of these growths. I must conclude, as previously, that the toxins are apparently of value in sarcomata arising in the nose and accessory sinuses, whether round cell, giant cell, or spindle cell.

Of the Cervical Gland cases it will be noted that there are seven apparent cures of primary growths and four of metastatic extensions from disease of neighboring structures. The latter are indicated in parentheses. This plan has been followed throughout the paper. Only primary growths are considered in this analysis but, believing that the effect of toxins on direct extensions or metastatic growths might be of interest, I have represented such secondary processes in parentheses. The apparent cures of primary sarcoma of the cervical glands are cases 18-24 inclusive, all reported as round or small round cell type, and composing about 10% of the total number of apparent cures. Add to this number four apparent cures of metastatic involvement. It seems fair to regard the toxins worthy of trial in inoperable cases of this type.

The Abdominal Wall cases are seven in number, 5 of spindle cell type, 2 of round cell type, and all apparent cures. Two extensions to the abdominal wall from sarcoma of the ilium were also apparent cures.

The intra-abdominal cases show four apparent cures including three spindle cell and one round cell. These were all inoperable growths involving in one case the ascending colon, small intestine, omentum, and liver border, and in another case the cecum, omentum, and mesentery. In the previous series were recorded seven cases of intra-abdominal sarcoma, all failures. These however, were extensions from thigh, true pelvis, or spermatic cord, or metastases from distant tumors. The apparent cures noted in this table were all primary growths. The two apparent cures recorded in parentheses were spindle cell sarcomata of the abdominal wall involving the bladder.

Of the Bone cases (not giant cell) thirteen apparent cures are recorded; five spindle cell, five round cell, and three mixed cell. The bones involved included two cases of the maxilla, two of the vertebrae, two of the ilium, and one each of the radius, humerus, sternum, metatarsal, tibia, femur, and lower jaw. The results of surgical treatment of periosteal sarcoma of the

femur and upper humerus (including hip joint and interseapulo-thoracic amputations) are notoriously poor. An apparent cure of each is here recorded. It need not be stated that sarcoma of the vertebrae often defy surgical cure. Partial operations are necessarily followed by recurrence and subsequently by death. The case epitomies at the end of the paper are, I believe, sufficiently convincing to justify the use of toxins in these inoperable bone cases. The number of apparent cures, furthermore, comprises over 18% of the total number of apparent cures here assembled.

Of the Giant Cell Bone cases the series shows ten apparent cures including three cases with involvement of the vertebrae, two of the superior maxilla, and one each of the sacrum, ilium, inferior maxilla, radius, and femur.

Under heading *Fascia and Muscles* have been assembled all cases originating from these tissues except those specially listed under headings *Chest Wall* and *Abdominal Wall*. There appear five apparent cures of primary growths and two of secondary growths from the spine and metatarsal. Five of the seven are of spindle cell type, including two of the buttock, and one each of the thigh, knee, and calf. The remaining two are growths of the back, both round cell. Cases of sarcomata of the upper extremities appear among the failures in this series but not among the apparent cures.

Skin and Subcutaneous Tissue cases include sarcomata arising from cutaneous and subcutaneous benign growths (pigmented naevi, etc.). The apparent cures include a melanotic sarcoma of the neck, a spindle cell degeneration of a pre-existing benign tumor of the shoulder, and a round cell sarcoma of the lip.

In reviewing both tables the type of growth most benefited is seen to be the round cell, 39% of the total number of apparent cures. Of this type the small round cell responds very much more favorably than the large round cell type. The percentage of apparent cures furnished by other varieties is spindle cell 36, giant cell about 15, and mixed cell about 7. It is seen that primary growths of bone (not giant cell) furnish the greatest number of apparent cures, over 18%, the giant cell cases furnish about 15%, cervical gland cases about 10%, and nose and accessory sinus cases about 8%. It has been stated that the spindle and round cell cases were evenly divided in bone and intranasal and sinus cases. The cervical gland cases are all round cell.

Very striking relief of pain is occasionally observed with the use of toxins. Coley makes particular mention of this in cases 85, 104, 55, and 56, namely, periosteal spindle cell sarcoma of the humerus, giant cell sarcoma of the sternum, round cell sarcoma of the pelvis, and malignant leiomyoma of the pelvis. The most remarkable cases in this respect which I have observed are a spindle cell sarcoma of the pelvis, and a tumor of the upper jaw encroaching on

the mouth, nose and orbit, both kindly referred by Dr. S. J. Mixter. The first case (No. 54) prior to the institution of toxins suffered such agony that doses of $\frac{1}{2}$ to $\frac{3}{4}$ of a grain of morphine were necessary every two or three hours. During the twenty-four hours he would also receive phenacetin, aspirin, codeia, and cannabis indica. Shortly after the treatment was started only occasional small doses of morphia were necessary, some days none at all. The other case although evidently a very vascular sarcoma of the superior maxilla cannot be included in this series because no pathological report was obtained. This man, who had been accustomed to considerable doses of morphia, entirely omitted the drug after the toxins were started.

CONCLUSIONS.

1. From this critical survey it seems fair to conclude that mixed toxins of streptococcus and bacillus prodigiosus (Coley) are of value in certain cases of inoperable sarcoma.

2. The treatment of primary or recurrent inoperable sarcoma with mixed toxins must be intensive. The increment of the dose and the interval between injections requires some experience. This method of treatment is distressing and is never certain. This analysis has been undertaken, therefore, in the hope of ascertaining the types of case which offer reasonable expectation of benefit.

3. The institution of this treatment is unjustifiable in cases in which operative measures of reasonable safety offer possible hope for removal. A frank statement of the nature and the severity of reactions, and the probability of benefit should be made to the patient or some responsible person before the treatment is undertaken.

4. Seventy-three cases after most rigorous criticism have been regarded as apparent cures.

5. The small round cell type apparently offers the greatest expectation of benefit followed closely by the spindle cell type (excluding fibrosarcoma). Only a relatively small number of mixed cell type have been benefited. The use of toxins in cases with multiple melanotic growths does not seem justifiable but their use in single melanotic growths is legitimate.

6. Regarding the tissue of origin the greatest number of apparent cures have occurred in bone sarcomata (exclusive of giant cell cases) over 18% of the total number of apparent cures, with an equal division of round cell and small cell types.

7. Giant cell cases (as defined in the text) furnish about 15% of the total number of apparent cures. The records seem to justify preliminary trials of toxins in carefully chosen cases in which slowly growing tumors have ruptured more or less extensively into the soft parts rather than immediate amputation. With skilful judgment a few limbs have apparently been saved. If such treatment is practiced, the

patient should understand that amputation may ultimately be necessary, and it should not be long deferred in the advent of increased rapidity of growth, repeated hemorrhages, considerable absorption, or superimposed infection.

A small group on account of anatomical situation, viz., extensive involvement of the vertebrae, defy surgical eradication. These, I believe, should be submitted primarily to surgical attack followed immediately by toxin treatment. The records justify this practice.

8. Primary inoperable round cell sarcomata of the cervical glands compose about 10% of apparent cures.

9. Sarcomata arising from fascia and muscle, which have been apparently cured, have been situated in the lower extremity, abdominal wall, and back. They compose about 16% of the total number of apparent cures. Nine of twelve are of spindle cell type.

10. In a small number of cases the toxins produce striking relief of pain.

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CASE REPORTS.

These reports are arranged in groups according to anatomical situation or tissue of origin of the growths. Under these various headings the arrangement is: first, apparent cures, followed in order by cases which have been classed in Group E, Group D, Group C, Group B, and Group A. Personal cases are recorded in detail. Other cases appear in abstract. Reference to de-

tailed reports of such cases appears in parenthesis after the case number in this series. Unless otherwise stated the number in parenthesis indicates the case number in Coley's Brussels Address. When the number is preceded by the word Table, it indicates the case number in the table at the end of Coley's Brussels Address.

INTRANASAL AND ACCESSORY SINUSES.

CASE 1. Personal Case. Referred by Dr. Scudder. Twice recurrent round cell sarcoma of antrum, ethmoid, superior maxilla, posterior septum and naso-pharynx. L. P. Italian woman of 32. House records E. S. vol. 676, p. 221; vol. 702, p. 37; vol. 716, p. 159; vol. 722, p. 57.

March 2, 1910. Operation, Dr. Scudder. Ether Resection of right superior maxilla for sarcoma of the antrum. Ethmoid cells curetted out. Frontal sinus not involved. Sphenoidal sinus opened, contained pus, curetted.

Pathological Report by Dr. James Homer Wright. Malignant Lymphoma. "Specimen consists of the greater portion of the right superior maxilla. Tumor mass fills up antrum, involves bony parts of the right side of the nasal cavity, and also appears on the outside of the bone at two points. Tumor consists of whitish translucent, moderately firm, rather homogeneous tissue. Microscopic examination (paraffin section). Tumor chiefly of cells, generally closely packed together, and a relatively small amount of stroma. Masses of cells are like large lymphocyte forms of cells found in lymphadenoid tissue. Some small lymphocytes are present. There are areas of necrosis."

Oct. 20, 1910. Operation. Dr. Scudder. Ether Partial removal of the septum for recurrent sarcoma.

Pathological Report. (1010-69.) Dr. Whitney. Malignant lymphoma. "A few bits of tissue showing on microscopical examination growth of lymphoid cells, in places slightly elongated and spindle-shaped."

May 11, 1911. Moved to operating room. Seen by Dr. Scudder. "Radical operation with enucleation of eye intended, but impossible to pass Crile ether tube on account of obstruction. Piece of growth removed with tube, evidently sarcoma. Process had extended to left side of nose and face. Only hope lay in attack of both sides of face. Deemed inadvisable."

Pathological Report. (Pieces of tissue removed with Crile tube) (115-42) Dr. Whitney. "Round cell sarcoma. Small pieces of tissue from the nostril, showing upon microscopic examination a small round cell tissue with new-formed blood vessels and remains of small glands scattered throughout it."

May 11, 1911. Toxin treatment instituted and continued three weeks. Maximum dose 3 minims. Reactions severe. Patient followed five months outside hospital, then referred to Boston Dispensary for consolidation in right lung. Later treated at Burroughs Place Clinic, at Long Island, and at Middleboro for tuberculosis of lung.

Feb. 28, 1914. Seen at her home. Still thin but of good color, has done her own housework for the past year, and expects to be confined in a few days. Examination through nose and mouth and opening beneath right eye, which exposes whole nasopharyngeal cavity, shows no evidence of recurrence.

March 26, 1914. Normal child born March 5. Mother still well.

Nov. 2, 1914. Operation, Dr. Scudder. A skin flap swung from forehead to cover defect in cheek following operation March 2, 1910. No evidence of recurrence found at plastic operation.

Criticism. A small round cell sarcoma of the nasopharynx, nose, and left side of face after radical attack of right side. Considered inoperable. No evidence of malignant disease 3 years 5 months after toxin treatment. Recorded in Group F.

CASE 2. Personal Case. Referred by Dr. H. A. Barnes. Small round cell sarcoma of antrum and ethmoid. Throat records, vol. xiii, p. 297. L. A. W., male, 55.

Oct. 14, 1910. Admitted to Ward G. For three months difficulty in breathing through nose. For two months epistaxis twice a week lasting one to six hours. For two months frontal headache, especially on the right, and nasal discharge.

Oct. 14, 1910. Operation, Dr. Barnes. Cocaine. Two large pieces of tissue snared from nose followed by profuse hemorrhage. Ether necessary to check bleeding by packing.

Pathological Report. Small round cell sarcoma. "A small piece of tissue showing upon microscopical examination a solid growth of round and slightly elongated cells infiltrating the tissue in all directions."

Nov. 28, 1910. Operation, Dr. Barnes. Ether. One and one-fourth inch incision on right side of the nose. Nasal process chiseled away and sarcomatous tissue exposed. Posterior nasal plug inserted. Mass scooped out with finger. Antrum then opened through canine fossa and found filled with growth, which was scooped and curetted out. The whole naso-antral wall was found to be destroyed. Antrum and right naris packed with gauze.

Dec. 5, 1910. Toxin treatment started and continued five and one-half months (May 23, 1911). Forty-nine injections. Maximum dose 10 minims. Reactions often severe. During this time the appearance of septum became suspicious and a small piece was removed which showed small round cell sarcoma. Toxins continued two and one-half months longer, at which time a note in the throat department states, "Nose clean; everything in fine condition." Patient had gained 25 pounds.

Dec. 12, 1911. (Seven months since toxins discontinued.) My record reads, "looks well, good weight and color. Working as janitor. No symptoms of recurrence. No evidence of same. Seen by Dr. Mosher who finds no evidence of recurrence."

Last seen Dec. 24, 1913 (two years, seven months since toxins discontinued). In excellent health, good weight and color, working steadily as janitor.

Criticism. A small round cell sarcoma of the antrum and ethmoid. Seems quite improbable that curetting eradicated such an infiltrating process, as recurrence showed. Seems fair to attribute apparent cure in part, at least, to toxins. Recorded in Group F.

CASE 3. Personal Case. Referred by Dr. Crosby Greene. Large spindle cell sarcoma of ethmoid and frontal bone. L. E. F., a woman of 46. House No. 180998.

Feb. 12, 1912. Admitted to Ward G with following history: Eight years ago first noticed movable

mass inside the nose, which was partially removed. Recurred one year later. At second operation (Dr. Greene) under ether a considerable quantity of tumor tissue and ethmoidal bone removed with cutting forceps. Pathological report, spindle cell sarcoma. No evidence of recurrence until last year when began to experience frontal headache and frequent epistaxis, and lately dizziness, nausea, and throbbing in head.

Feb. 12, 1912. Operation, Dr. Greene. Ether. Through an incision at side of nose and beneath eye the antrum opened. Its inner wall and middle turbinate removed. Ethmoidal region found filled with vascular growth which was evacuated with curette. A large portion of the right nasal bone was removed and cribiform plate exposed. Brain pulsation visible.

Pathological Report. No. 122-45. Spindle cell sarcoma. "A piece of growth from ethmoid showing upon microscopical examination bundles of large spindle cells interlacing irregularly. Blood vessels in many places with distinct walls."

Treatment with mixed toxins instituted in one week and continued six weeks. Reactions moderate. Maximum dose 4 minims.

Dec. 2, 1913. A letter from Dr. Greene states that one year after operation (Feb., 1913) no subjective or objective evidence of recurrence.

March 6, 1914 (two years since toxins discontinued). A letter from patient states that her health is very good and there is no indication of old trouble.

A letter received from patient May 29, 1914, states she is still in excellent health, two years, two months since treatment discontinued.

Criticism. An extensive infiltrating spindle cell sarcoma. An extensive operation by Dr. Greene. It may be argued that all of the growth was eradicated at operation. This is possible but at the time it did not seem probable. Perhaps this case should be excluded. It has been recorded in Group F.

CASE 4. Personal Case. Referred by Dr. Mosher. M. L., age two. Throat records, vol. xiv, p. 245.

Dec. 3, 1910, admitted to House with history of appearance of sore in the nose accompanied by much discharge and passage of pieces of tissue. The nose appears flattened and one-fourth inch of the anterior end of the septum has disappeared. The exposed septum is much thickened. Tuberculin skin test and Wassermann test negative. December 8, specimen removed for examination.

Pathological Report by Dr. Whitney: fibroma or fibrosarcoma.

Jan. 20, 1911. Operation, Dr. Mosher. Ether. Septum and thickened ethmoidal region removed as far as possible and packed with gauze.

Jan. 24, 1911. Treatment with mixed toxins instituted and continued five months. Reactions slight, rarely severe. Maximum dose three and one-half minims.

Patient has since been seen by me with rhinologist every few months. Now two years, eleven months since toxins discontinued, there is no subjective or objective evidence of recurrence.

Jan. 29, 1915. Patient still free from recurrence. (3 years 9 months since toxins discontinued.)

Dr. Whitney kindly re-examined the sections in March, 1914, and reported, as previously, fibroma or fibrosarcoma.

Criticism. Owing to the pathological report it may be argued that this case should be excluded. It has been included because the process involved not only the septum but extended up into the ethmoid cells. Recorded in Group F.

CASE 5. (Table, Case No. 88.) Case of Dr. J. C. Whitley of St. Louis, Missouri. Sarcoma of superior maxilla, frontal sinuses and ethmoid.

Pathological Report. Spindle cell sarcoma with giant cells. Toxin treatment instituted immediately after an incomplete operation. Maximum dose, 20 minims. Remains of growth sloughed out. Patient in excellent health without signs or symptoms of recurrence two years later. Recorded in Group F.

(To be continued.)

THE STUDY OF DISTURBANCES OF THE STOMACH.

By H. F. HEWES, M.D., BOSTON.

[From the Clinic of the Massachusetts General Hospital.]

(Continued from page 292.)

All physicians are familiar with the fact that stomach symptoms are perhaps the most common, at all events one of the most common, attributes of the human race. In the study of these manifold stomach conditions he must discriminate as far as possible, by his history record and physical examination, and tube examination in the cases not obviously cases of disease outside of the stomach, whether they are real stomach diseases, or part of a general condition, of debility, or nerve instability, or intestinal atony and constipation, and use the x-ray for their study where his judgment decides for it.

A third special method of investigation of much use in connection with the study of stomach cases is the examination of the feces for blood by the chemical blood test.

A constant or frequent blood finding in the feces in cases with symptoms pointing to stomach trouble is good evidence of the existence of ulcer of the stomach, or duodenum, or cancer. In some cases of duodenal ulcer it is our only means of making a definite diagnosis. Of course blood in the feces may come from hemorrhoids, or intestinal lesion, as intestinal cancer, or ulcer, or colitis. And some of these conditions may give apparent stomach symptoms. But often, as stated, this blood finding taken with other factors of the cases is of much value for the diagnosis of a stomach lesion.

This concludes the review of the methods of clinical study which are utilized in the investigation of cases with symptoms suggesting stomach trouble.

The exact method of procedure of clinical examination for diagnosis differs, of course, with individual cases.

It may happen that the first method of study, the record of symptoms as given by the patient, is sufficient for absolute diagnosis, and further investigation by special methods may be deemed unnecessary. This, for example, is the fact in some cases of bleeding ulcer having a clear record of recent vomiting of blood. Or it may be that this record with the record of physical examination gives a definite diagnosis of some disease outside the stomach, as appendicitis or tuberculosis, which may be deemed a sufficient cause of symptoms.

In all other cases, making the majority of cases with stomach symptoms, it is necessary, however, to go further and make at least a tube examination, and often an x-ray examination also. If the tube examination plus the record previously obtained makes a diagnosis, we may stop here. This is the fact in cases showing twelve-hour food stasis, for example. Such a finding means always obstruction of the pylorus, with rare exceptions due to ulcer or cancer, and often the tube examination tells which of the two, ulcer or cancer.

If with the record and tube examination, diagnosis is not clear, we may resort to x-ray examination. This may show definite evidence of disease, when tube examination is merely suggestive, or when it is entirely negative, or it may exactly locate a lesion already diagnosed by the examination.

The following records of cases taken from my own clinical records, will illustrate the method of procedure followed in the study of stomach cases, and the variation in this procedure according to the character of the particular case in hand. Special cases have been selected also to illustrate some of the most important points already reviewed in regard to the value of the various data obtained by the several methods of examination, for drawing conclusions for diagnosis.

CASE 1. R. L., age 30, Aug. 1, 1911. One week ago the patient, who had had no previous dyspepsia, began to have distress in the epigastrium, coming, perhaps one hour after meals and lasting one to two hours—there was raising of gas and sometimes sour regurgitation, but no vomiting. This has continued to the present time.

Yesterday the patient vomited a quart of red blood. The specimen was seen by her physician.

Examination: Patient rather pale. Hemoglobin, 65%. Physical examination otherwise negative. A diagnosis of bleeding ulcer of the stomach was made without further investigation. It was not considered desirable to use the tube and x-ray examination seemed unnecessary. In fact all that the tube could show would be blood, of which we had evidence in the history, and the x-ray examination would very likely show nothing, as is often the case with fresh bleeding ulcers. The feces examined on the first and second days of observation showed a strong positive blood test. This case could have been one of bleeding from esophageal varix but a diagnosis of ulcer seemed reasonable,

without further investigation. The history, including as it did, one positive objective pathological finding, the blood vomited, was sufficient for the time being. The patient was given medical treatment, was apparently cured, and has had no stomach symptoms since, up to December, 1914.

CASE 2. Age 60, May, 1910. Eight months ago the patient began to have a feeling of distress, and fullness, after eating, with gas and belching. This has continued since. Two months ago the patient began to vomit, at first once or twice a week but for the last two weeks almost daily, often twice a day. Some marked pain before vomiting. Vomiting occurs as a rule soon after eating. Of late the amounts vomited have been large, no blood seen. Much loss of weight and strength.

Examination: Patient thin and pale. Hemoglobin, 80%. Physical examination otherwise negative.

Tube examination: Fasting contents, 500 c.c. of thick fluid containing much food. Blood test positive. No free HCl. Test meal contents, no free HCl. Feces showed a positive blood test.

In this case the history was suggestive of a serious stomach trouble, especially the recent history, but it was not, taken alone, absolutely diagnostic of organic disease of the stomach, since we can get such a history in nerve conditions, or in disease elsewhere affecting the stomach. The recent history was strongly suggestive of stasis which means as a rule cancer or ulcer at the pylorus, but a tube examination, at least, was needed to prove the existence of this condition. Also allowing stasis, special examination was needed to discriminate between cancer and ulcer.

The tube examination here did all these things definitely. It proved stasis by the twelve-hour food residue in the fasting contents, and the absence of free HCl in the fasting and test meal contents indicated that the stasis was due to cancer rather than ulcer. The blood finding by tube and feces examination also proved the presence of organic disease.

In this case no x-ray examination was necessary for diagnosis. It might have had some value as showing the extent of the cancer, but was not needed for diagnosis. X-Ray would undoubtedly have given evidence of pyloric obstruction by cancer or ulcer, probably also would have suggested cancer rather than ulcer, if it had been done in place of the tube examination. But tube examination is more feasible ordinarily than x-ray examination and is therefore done first, often, as in this case, avoiding the expense of x-ray examination. Operation upon this case which was necessarily to relieve the stasis, if not for cure, showed cancer at the pylorus.

CASE 3. R. M., age 25. For three years the patient has suffered off and on from dyspepsia. The symptoms consist of distress in the stomach, coming sometimes soon after eating, sometimes long after eating. Sometimes there is real pain. Sometimes the patient induces vomiting for relief of distress. There is no spontaneous vomiting. No history of

blood at any time. If the patient is very careful she may be comfortable without much dyspepsia for months, but she has some symptoms a good part of the year.

Examination: Patient thin and very pale. Hemoglobin, 70%. Physical examination otherwise negative save for soreness and tenderness over the epigastrium.

Tube examination: Fasting contents 40 c.c. of fluid, no food, no blood. Free HCl present. Sediment shows large number of epithelial cells. Test meal contents, free HCl, 0.18%.

X-ray examination shows an irregular projection in lesser curvature, with check of peristalsis at this point, and incisura in opposite wall, peristalsis vigorous above and below area. No 6-hour residue. Sphincter and cap normal. Feces examination negative.

Here the history was suggestive of chronic stomach trouble, but, alone, justified no positive diagnosis of ulcer or cancer. The tube finding was slightly abnormal in quantity and sediment finding of fasting contents, and in high acid content of test meal contents, but did not justify a positive diagnosis of organic stomach trouble. It showed simply a hyperacidity which may mean ulcer or may not.

It was necessary here to resort to x-ray examination. This method gave a positive finding suggestive of penetrating ulcer of the lesser curvature. This finding together with the history of long continued stomach symptoms, justified a diagnosis of ulcer. Operation showed an old perforating ulcer of the lesser curvature.

In this case the x-ray finding was the really important factor for diagnosis.

CASE 4. E. S., age 65. About four months ago the patient began to have fullness after eating and eructations of gas. Was more comfortable when he ate little. No record of previous stomach symptoms. This has continued and symptoms are now more marked but never very bad. No vomiting. Loss of 20 lbs. in six months. Patient feels weak and appetite very poor.

Examination: Hemoglobin, 60%. Physical examination otherwise negative.

Tube examination: Fasting contents, 20 c.c. of dark colored fluid, no food. Marked positive blood test, no free HCl. Sediment contained many broken down cells. Test meal contents. No free HCl.

X-Ray examination: Some irregularity of outline of stomach in lesser curvature. Peristalsis slightly sluggish. No 6-hour residue, sphincter and cap normal.

Feces examination showed positive blood test.

In this case the history was no way suggestive of serious stomach trouble as far as the record of symptoms of stomach trouble went. There were the symptoms which are frequently seen in cases of debility, nerve conditions, ptosis, that is, in conditions other than organic stomach disease. The only suggestive point was the persistence, and the record of loss of weight and strength. The tube finding was very suggestive of cancer of the stomach, the presence of blood and the ab-

sence of free HCl, together with the blood finding in the feces, if such findings are made on two or more separate occasions, giving us fairly positive evidence for diagnosis of cancer. An x-ray examination was desirable for possible confirmation of diagnosis made by tube finding. X-ray finding was suggestive of organic lesion of the stomach, either cancer or ulcer at the lesser curvature. The x-ray finding here was not as conclusive for diagnosis as the tube finding. If we had had the x-ray record alone we could hardly have made a positive diagnosis as the abnormality found was so slight that accident or some extraneous influence acting on the stomach could have given it, but taken with the tube finding, the x-ray finding was important.

With this evidence, a second tube examination and a second feces examination were made. Tube finding No. 2: fasting contents, 25 c. c. of reddish blood-tinged fluid. Some fresh blood was present. Feces examination No. 2 gave a positive blood test. With this record of a positive blood finding in stomach contents on two occasions, and a positive feces blood finding in two instances, together with the absence of free HCl in the test meal contents, a positive diagnosis of cancer of the stomach was made. With the x-ray evidence the cancer was located in the lesser curvature. Operation showed cancer on the lesser curvature.

In this case we needed the evidence of all methods of investigation, the most conclusive evidence being obtained by tube. I call attention to the short history of symptoms, with steady persistence after the start, in a case of fairly advanced cancer. This is not unusual.

CASE 5. O. T., age 24. Four weeks ago the patient began to notice occasional spells of pain located to the right of the navel. The pain came at any time, after a meal, or when empty. It sometimes lasted an hour or two, sometimes 15 minutes. With it has been associated some belching of gas and stomach unrest. No vomiting. This has continued off and on to the present time. In this period the patient has had several spells of weakness and vertigo when he felt as if he was going to faint. He has grown weaker and has grown pale. Bowels regular.

Examination: Hemoglobin, 70%. Physical examination otherwise negative. No tender spots in abdomen.

Tube examination: Fasting contents, 30 c.c. of fluid. No blood test. Free HCl present. Test meal contents. Free HCl, 0.18%.

X-ray examination. Outline of stomach and duodenum normal, good sphincter and cap. Peristalsis normal.

Feces examination repeated twice always shows a blood test on a meat free diet.

Diagnosis: Bleeding in the intestinal tract, probably due to duodenal ulcer. The patient was treated medically and improved. Two months later he had another spell of weakness and blood reappeared in the feces. Operation showed a bleeding duodenal ulcer.

In this case the history was one which could

go with any simple indigestion, with an appendix, a gall bladder, etc. The only really suggestive sign was the spells of faintness. Stomach examination and x-ray examination were negative. The feces examination made the diagnosis. If we had depended upon the x-ray alone in this case the disease would not have been discovered.

CASE 6. M. L. Age 40. For two years off and on the patient has been troubled with indigestion. The symptoms are nausea and distress located in the pit of stomach, sometimes pain across the abdomen in the region of the navel. The distress is apt to come two or more hours after a meal, but may come at other times. Upon two occasions there has been vomiting with the pain. He has had about five spells in two years. Between spells he may be free from trouble or have mild dyspepsia. Bowels are constipated. He uses laxatives frequently. This spell began a week ago. He has a dull pain much of the time above the navel, and nausea. He vomited once four days ago. No blood seen.

Examination: Hemoglobin, 100%. Temperature, 99.8. Pulse, 86. White count, 15,600. Marked tenderness in the right iliac fossa. No actual spasm. A diagnosis of appendicitis was made. Here the symptoms were located by the patient in the stomach. The history could go with organic stomach trouble. As general examination however located a definite disease outside of the stomach as a cause of symptoms, and no special examination by tube or x-ray was necessary. Appendicitis was found at operation.

Note that the history in this case, of intermittent attacks of stomach trouble over a long period of time, is not unlike that found frequently in cases of duodenal ulcer.

CASE 7. R. P. Age 28. For two years the patient has been subject to spells of stomach trouble, with symptoms of distress, often acute pain, coming two hours or more after eating and relieved by food. There is much gas, and heartburn, sometimes pyrosis, actual regurgitation of acid fluid. Occasionally with bad pain there has been vomiting. No blood ever seen. The vomitus has consisted of clear watery fluid without food. There have been perhaps three spells a year lasting for three weeks to two months, with periods between of complete freedom from symptoms.

Examination: Hemoglobin, 100%. Physical examination negative.

Tube examination: Fasting contents, 80 c.c. of clear fluids containing free HCl. No blood, no food. Sediment normal. Test meal contents: Free HCl, 0.26%, i.e. hyperacidity. Feces examination, negative.

X-ray examination: Outline of stomach and duodenum normal. Peristalsis normal. No residue.

The history of this case suggests hypersecretion or hyperacidity. It could be that of a duodenal ulcer of which hypersecretion is often an associate, or a gastric ulcer, or a simple hyperacidity, or it could have been a gall bladder or neurosis without actual hyperacidity. I have seen such histories with a normal acid content or even a low one. The tube examination proved

the existence of hypersecretion and hyperacidity but it proved nothing as to whether it was a simple hyperacidity or a hypersecretion secondary to ulcer.

X-Ray examination was necessary for further light. The x-ray examination showed a normal stomach and duodenal outline and normal, though active, peristalsis. As a result of the full examination a diagnosis of hypersecretion was made. Ulcer cannot of course be absolutely ruled out by a negative x-ray in such a case, but with a clear tube finding of hypersecretion accounting for symptoms by the discovery of a well-recognized stomach disease, a negative x-ray certainly leaves this diagnosis established for the time. As a matter of fact, this case was operated upon through the advice of a surgeon in spite of the examination, and the stomach opened. No evidence of ulcer was found. I have seen many cases with an exactly similar history to this case and similar findings by tube, give an x-ray finding suggestive of duodenal ulcer, where operation has shown chronic duodenal ulcer. This case gave the symptom complex regarded by Monagan as diagnostic of duodenal ulcer.

CASE 8. R. I. Age 50. For 15 years the patient has suffered off and on from attacks of stomach trouble consisted of distress, sometimes soon after food, sometimes two hours or more after eating, gas, and bloating. Vomiting was rare in the early days, but of late has been frequent. The trouble came by spells with long intervals of freedom from symptoms. About six months ago a spell began which has continued ever since. Recently vomiting has occurred daily often after each meal. Amount of vomitus sometimes large. Vomitus occasionally of dark color. There has been much loss of weight recently.

Examination: Hemoglobin, 75%. Patient very thin. Physical examination otherwise negative.

Tube examination: Fasting contents amount, 1000 c.c., much food present. Blood test faintly positive. Free HCl present. Test meal contents. Free HCl, 0.11%, i.e. normal acidity. Feces examination, blood test positive.

X-ray examination: In antrum and at pylorus an area of absent peristalsis, with irregular outline to shadow, sphincter absent, duodenal cap not well seen. Peristalsis above lesion normal. Large 9-hour bismuth residue.

In this case the history with its duration and record of intermittent attacks suggested chronic ulcer, finally contracting and closing the pylorus as indicated by the advent of persistent vomiting. The tube examination gave absolute evidence of stasis, that is, either cancer or ulcer at the pylorus, but as free HCl was present did not discriminate between cancer and ulcer, as in Case 2, where the absent free HCl favored cancer.

The x-ray examination was made to get evidence, if possible, for discrimination. The x-ray picture here though compatible with ulcer was more suggestive of cancer, with the irregular

character of the shadow and the absence of vigorous peristalsis above the pylorus. Ulcer usually has deep and vigorous peristalsis. Cancer was found at operation.

The long history and tube examination together really favored ulcer, though one factor of the tube examination, the presence of blood, together with the blood finding in the feces was more suggestive of cancer, as constant bleeding is much more common with cancer than with chronic ulcer. The x-ray here turned the tide of diagnosis to cancer. Possibly this was a case of cancer developing on an old ulcer which would explain the combined picture, the long history of trouble, with the actual presence of cancer. One may say that an x-ray examination was not absolutely necessary in this case as the tube finding showed definitely that either cancer or ulcer at the pylorus was present and therefore that operation was necessary. Actual identification of the nature of the lesion could be made by operation better than by x-ray, but it is useful to know as much as possible about the case before operating even when operation is assured. Sometimes an x-ray indicates that cancer involvement of the stomach is so extended that operation is useless, and saves this step.

CASE 9 M. L., age 30. For two years the patient has had spells of stomach trouble consisting of distress and fullness, and raising of gas soon after eating. Occasionally there has been vomiting for periods of a day or two. The patient drinks a good deal of liquor and occasionally goes on sprees. The stomach trouble is especially bad after a spree. The weight is about 20 lbs. below his best weight. Examination: Hemoglobin, 95%. Physical examination otherwise negative.

Tube examination: Fasting contents, 60 c.c. of thick mucous fluid pouring like mucilage. No food, no blood, no free HCl. Sediment contains many epithelial cells. Test meal contents: No free HCl. Total acidity, 0.07%. Feces examination negative.

(To be continued.)

Reports of Societies.

CLINICAL CONFERENCE OF THE NEUROLOGICAL INSTITUTE, NEW YORK.

REGULAR MEETING, JAN. 21, 1915. DR. J. RAMSAY-HUNT IN THE CHAIR.

PLURIGLANDULAR INSUFFICIENCY OF SCLERODERMIC TYPE.

DR. WALTER TIMME presented a woman fifty-five years of age, unmarried, who entered the Neurological Institute in the service of the third division on January 5, 1915, complaining of general nervousness, weakness, inability to stand or walk, and numbness and tingling of the extremities. This condition had been progressing for one and a half years, and with some slight exceptions, had been

getting worse during this entire time. At the onset she first felt a numbness in her hands, and began to be clumsy in their use. She then noticed a gradually increasing weakness in her hands and arms so that she was unable to use a spade in the garden. Later, she was unable to get up from a chair or get out of a hammock. She had cramps in the calf muscles at night and some muscular pains in the thighs and legs in trying to get about. In the fall of 1913 she noticed a stiffness of the neck with pain which lasted until the spring of 1914, accompanied with difficulty in swallowing and with some inability to open her mouth as far as previously. The joints were never painful or swollen. Gradually the motion of the different members became more and more limited and she became bedridden and extremely helpless. During this time she had several falls in trying to get about and undertook osteopathic treatment for the relief of her condition with no effect. There has been some improvement in her arms, but her legs have become progressively worse. Her menstruation ceased two years ago. Her previous history gives the usual diseases of childhood. Eight years ago she had severe pain in the left elbow which was treated by osteopathy and five years ago she had a right sciatica. Syphilis is denied, there are no drug addictions, her habits are good and heredity negative. Her neurologic status upon entrance is as follows:

The patient is fairly well nourished, but presents a picture of trophic disturbances. There is some cyanosis of the extremities, her skin is dry and scaly where it is not glossy, the hair dry and lusterless, and there is a symmetrically disposed pustular eruption on the face. Upon the upper chest and neck there is an area of brownish pigmentation. In various parts of the body there are areas of induration in the skin without discoloration, and also below the skin. These are chiefly in the thighs and lower legs. The skin of the face is dry and drawn, so that it presents a mask-like appearance and offers some opposition to the full opening of the mouth. She says that there is some difficulty in opening the eyes wide. Her pulse rate is 110 and her blood pressure 160. The muscular system is practically everywhere involved atrophically. There is atrophy of the arms, forearm, and largely of the hand muscles, both flexors and extensors, together with contractures; so that she cannot extend the forearm from the arm or the hand from the forearm. In the legs and thighs similar atrophies are present, most marked in the lower legs where the calf muscles and the peronei are involved. She can lift the knees in bed only for a short distance, perhaps a foot or so, and can only slightly abduct them. She cannot sit up unassisted nor can she stand. There is some slight facial weakness on the right side, and some slight difference in the palpebral fissures. There is no myokymia, no tremor; her coördination is good.

The knee jerks upon entrance were absent, but can now occasionally be elicited. There is no Babinski, no clonus. The other reflexes are present and equal. The right pupil is slightly greater than the left but both react equally well to light and accommodation. There are no sensory changes excepting perhaps some slight diminution over the indurated areas. There is no loss of sphincteric control. She has a chronic constipation. The thyroid is slightly enlarged but soft. Emotional control was diminished, so that she would cry at being assisted

to a sitting position for fear of falling; she is irritable, finding fault with her room-mate and with the nurses without sufficient cause. X-ray examination of the left elbow joint is negative, though there is a suspicion of rarefaction in the bony structures. Electric examination of the muscles showed no R. D.; urine, blood and Wassermann are all negative.

So that we have before us a patient in the prime of life, giving evidence of a profound change in many of the tissues of a character that causes a perversion of their functional activity. The onset is concomitant with the beginning of the involutional period of life and with the cessation of menstruation. If we take the symptoms in groups we can readily see a correspondence in them with those due to defective function of various internal glandular organs—the scaly, dry skin to hypothyroidism, the pigmentation to adrenal insufficiency, the acroparesthesiae and cyanosis of the extremities to a combination of ovarian and chromaffin insufficiency. Furthermore, many of the clinical evidences seem to point to entities of which in the past we have seen examples. Thus, to mention two of the more striking ones, dystrophia muscularum progressiva and scleroderma. The patient might, with some justice, be placed in this latter class. She has the sclerodermic condition “en plaques,” the mask-like face, the indurated skin and underlying masses, the atrophies and succeeding contractures and disturbances of motility, the falling out of the hair, the pigmentation, and the erythromelalgia. She has also some of the features of the ordinary muscular atrophy with the wasting of the large thigh muscles and the gradual involvement of other groups. The deep reflexes are returning, any dysphagia she might have had, had disappeared; and there is no fibrillary twitching. The age of onset is rather against this view, also the wasting of the intrinsic hand muscles. A disturbance of the internal secretions may have for its results many of the symptoms common to these disorders. Indeed Cassirer, Ballet and Delhelm and Notthaft have observed cases of progressive muscular dystrophy, scleroderma and Basedow's Disease seemingly combined in one patient, and have come to the conclusion that this incidence of all three had as a basis, a disturbance of the internal secretions. Cassirer goes even further. The disturbance of these secretions is due, according to him, and I agree thoroughly in his views, to a perversion of the function of the vegetative or autonomic nervous system. Indeed he goes to the extreme point of declaring that no one single ductless gland can be alone in its perversion, but must of necessity drag every other one into the arena; so that the various types of the tropho-neuroses assume the characteristics of the condition due to the abnormal activity of the most affected gland. If we examine these clinical types closely we will not fail to find evidences of other glandular disturbances also. And for this reason have we the nuances through which imperceptibly one disease merges into the other, as one or the other internal secretions controls the situation. In the present case, the difficulty probably began in the ovarian involution. The usual compensation for this condition is in an increase of suprarenal capsule secretion which is inhibitory to the suprarenal secretion itself. If this compensation fails, then an increased adrenal content results, with corresponding effect upon the thyroid and so a very complex picture pre-

sents itself. The reason for the assumption of an autonomic basis for this interactivity is, that after section of various of the sympathetic nerves such as the splanchnic, no complementary action results; and further, that autonomic stimulation will produce changes in the internal secretions. This patient has been for less than three weeks on ovarian extract and thyroid, and she is beginning to improve. Her pustular eruption is better, the pigmentation is less intense and she moves her arms and legs more freely than before. How far she will improve time alone can tell.

A CASE OF SUSPECTED FRONTAL NEOPLASM.

DR J. W. STEPHENSON presented from the second division, a man 52 years of age who denies alcoholism, venereal disease, or other previous history of significance. No lead line on the gums. He was first seen on the ninth of January, 1915, his chief complaint being that of frontal headaches of at least six months' duration. He was mildly confused and in consequence of this confusion a detailed account of his immediate history was impossible. However, he volunteered the information that "he could not see quite so well." There was apparently general lassitude and yawning was conspicuous. Examination revealed a man of small but firm stature, confused, answering questions only in monosyllables with a husky voice. His station was unsteady, falling first to one side, then the other, gait was slow and deliberate. There was no apparent ataxia, nor could any tremors be elicited. The knee jerks were elicited only upon reinforcement, the ankle jerks were present and equal, the plantar responses were flexor, there was no clonus. The right epigastric reflex responded more promptly than the left, the abdominals were present but inactive. The eye mobility was good, there was no nystagmus. No diplopia. The pupils were irregular in outline but reacted to light, coming down slowly. Thoracic and abdominal cavities negative. No tenderness could be elicited over the skull nor was there any difference in the percussion note.

Patient has now been under observation for 13 days during which there has been a slow but steady progression of the mental confusion, until it is now practically impossible to get any coöperation from the patient. However he does volunteer the information that his headaches are less severe in a recumbent posture. Analgesics have been used without relief. Patient is now incontinent and uncleanly.

On January 20, physical findings were as follows: The knee jerks which were previously obtained only on reinforcement are now active, and there is a definite Babinski response on the left side, questionable on the right. The epigastric reflexes are not elicited. Pupils very slow. His confusion is decidedly more pronounced. Temperature has ranged between 98° and 99.5°, pulse between 68 and 104, the average being 88; respiration between 16 and 24, average 20; blood pressure between 135 and 150. Blood, urine and feces negative. The serum Wassermann is negative. Spinal-fluid; Wassermann is negative, three cells, considerable excess of globulin, Fehlings reduced. The eye report by Dr. Holden is as follows: "Disc outline slightly blurred, veins over-filled suggestive of beginning papilloedema." In this connection Dr. Stephenson mentions that the observations made by him disclosed a change in the condition of the fundi after lumbar

puncture; the margins of the discs being decidedly more distinct the day after the puncture. Four days after the puncture the disc showed practically the same findings as before the puncture.

I should have mentioned that the patient has had lots of trouble and worry, his wife being alcoholic, and for a long while the headaches were assumed to have been of a functional nature. There has been no vomiting but occasional nausea has been experienced.

Three possible diagnoses have been considered in this case, namely frontal neoplasm, advanced paresis and manic stupor, the latter of which could be eliminated by the presence of the Babinski phenomenon, the nature of the pupillary reflex and the condition of the discs. Advanced paresis is not an impossibility, particularly inasmuch as the ophthalmologist is not convinced that there is an actual beginning choked disc, but Dr. Stephenson considers that the changes observed in the discs before and after lumbar puncture are of great significance; also the globulin reaction was decidedly pronounced and not unlike that which is frequently observed in compressions due to spinal or cerebral neoplasm. The negative Wassermann reaction also militates against the diagnosis of paresis. There is no distinct speech defect though there was a peculiar huskiness of his voice. Test phrases were well performed when coöperation could be obtained. It is a well known fact that frontal neoplasm may exist for a long period of time without developing choked disc.

SYPHILITIC HEMIPLEGIA IN A CHILD AGED FIVE.

DR. T. J. KEYSER presented from the first division a little girl with left sided hemiplegia.

The patient was brought to the Hospital by her father January 16, 1915, complaining of headache, pain in the eyes, vomiting and paralysis of the left arm and leg. The father is being treated at present for pulmonary tuberculosis. He denies ever having had a chancre and shows no evidence of syphilis. The mother and two brothers are living and well. The patient has always been a bright, healthy child.

Four weeks ago (December 18th) the patient complained of pain in the left side of the neck. There was moderate enlargement of the glands of the neck on the left side. In a few days the pain and swelling disappeared entirely.

Three weeks ago (December 25th) she complained of general headache and pain in the eyes. These symptoms have been present almost constantly since, although less severe during the past week. Since the 25th she vomited several times each day. The vomiting occurred suddenly without nausea and was projectile in character.

One week ago (January 9th) it was noticed that the patient could not use the left hand as well as usual. This weakness gradually progressed and extended so that in three days there was complete paralysis of the left leg and arm. There is no history of convulsive attacks or mental symptoms. The temperature has been taken two or three times a day by the father and was normal throughout except on one occasion when it was 99.2°.

The patient is a bright, intelligent child, showing no evidence whatever of mental symptoms. She is well nourished and normally developed. There are no signs at all of congenital syphilis, or tuberculosis of the lungs, bones, etc. The left arm and leg are completely paralyzed. There is a moderate but distinct weakness of the left facial muscles of the

supranuclear type. Otherwise the cranial nerves show no involvement whatever. The deep reflexes are all present, equal and normally active. The abdominal and epigastric reflexes are absent on the left side. Babinski sign is present and Hoffman's is at times obtained on the left side. The electrical reactions are normal and there is no stereognosis. The pupils are equal regular and react promptly. The fundi are normal and there is no restriction of the visual fields.

The temperature varies from 98° to 100°, usually being higher in the afternoon or evening. The pulse rate varies from 96-128. The blood examination shows 16,000 W. B. C. of which 79% are polymorphs. The urine is normal. Von Pirquet's cutaneous reaction negative. The cerebral spinal fluid shows 140 cells to the c. m., of which 132 are small lymphocytes. Unfortunately the Wassermann test was not done on the c. s. fluid. The serum Wassermann was positive at the Neurological Institute. A subsequent Wassermann test by the Board of Health was also strongly positive. The history of the headache and vomiting followed by the development of a hemiplegia of the cerebral type are indicative of a brain lesion. The tubercle bacillus is a possible etiological factor, indicated by the pulmonary tuberculosis of the father, the masses of lymphocytes in the spinal fluid, and the moderate evening elevation of the temperature. However, the positive Wassermann reaction together with a pleocytosis of the spinal fluid are in favor of syphilis as the probable etiological factor, in spite of the absence of all other clinical evidence of this disease. This diagnosis was later corroborated by a prompt response to antisyphilitic treatment.

Book Reviews.

Fever—Its Thermotaxis and Metabolism. By ISAAC OTT, A.M., M.D. New York: Paul B. Hoeber, 1914.

The contents of this book represent three lectures, delivered before medical students. In these three lectures the author discusses fully the various aspects of fever, especially from the experimental and physiologic point of view. Ott himself has made notable researches in this subject. The work is a very complete resumé and is not at all elementary, as might be assumed from the fact that the lectures were delivered before medical students.

Practical Therapeutics. With Especial Reference to the Application of Remedial Measures to Disease and Their Employment upon a Rational Basis. By HOBART AMORY HARE, M.D., B.Sc., Professor of Therapeutics, Materia Medica and Diagnosis in the Jefferson Medical College of Philadelphia. New (15th) edition, thoroughly revised and rewritten. Octavo, 998 pages, with 144 engravings and

7 plates. Philadelphia and New York: Lea and Febiger. 1914.

The fifteenth edition of this book appears in form similar to its predecessors, although, as has been the custom of its author, the text has been liberally revised to meet the changing therapeutic outlook. In this edition Dr. Hare has had the benefit of the expert knowledge of Dr. George E. deSchweinitz, Dr. Edward Martin and Dr. Barton C. Hirst in revising the sections dealing with diseases of the eye; with antiseptics; with venereal disease; and with diseases of the puerperal state respectively. In general, the volume is again decidedly to be recommended as an extremely convenient and practical treatise on therapeutics in the broad sense.

On Dreams. By PROF. DR. SIGMUND FREUD. Only authorized English translation by M. D. Eder, from the second German edition. New York: Rebman Company. 1914.

This little book is not a translation of Prof. Freud's larger work, "Traumdeutung," but a brief popular account of the more essential points of his theory of dreams. A footnote on page 104, in which the translator says "the words from 'and' to 'channels' in the next sentence is a short summary of the passage in the original. As this book will be read by other than professional people the passage has not been translated, in deference to English opinion," shows that the work has been modified for popular reading, and indicates that state of mind of the public which forced Havelock Ellis to publish many of his strictly scientific studies of sexual problems in a foreign tongue.

Lead Poisoning. By SIR THOMAS OLIVER, M.A., M.D., M.R.C.P. New York: Paul B. Hoeber. 1914.

Sir Thomas Oliver has compressed into a small book of a little over 200 pages much information concerning lead poisoning. As is well known, he has for many years been interested in industrial diseases and the dangerous trades, in fact, long before there was any popular concern with the subject, and it is not too much to say that he is largely responsible for the increasing public interest in them. Lead poisoning is one of the most important and one of the most widespread of all the industrial diseases. The author discusses the sources of lead poisoning in the various trades, the clinical features and treatment, both preventive and curative. In an appendix are given the factory and workshop orders of the English Government. It is an important but authoritative monograph, based largely upon the writer's experience and researches.

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THE CLASSIFICATION AND DIAGNOSIS OF DIARRHEA IN BOTTLE-FED INFANTS.

By reason of their commonness the diarrheas of infancy constitute a subject of perennial interest, and it is highly desirable that the general practitioner should, as far as possible, be able to recognize the different varieties. All the forms are naturally more frequent in summer than in the other seasons, but all may be met with at any time of the year. The two great classes are intestinal indigestion and infectious diarrhea; and Dr. Roger H. Dennett, adjunct professor of diseases of children in the New York Post-Graduate Medical School, in a recent paper on this subject, places in a third class the miscellaneous varieties, among which are included cholera infantum (in which no bacterial micro-organism has as yet been isolated as its direct cause), Finkelstein's sugar intoxication, strychnine, diarrhea from the continued daily use of cathartics, and mechanical diarrhea due

to the ingestion of some specific unfit article of food.

Dr. John Lovett Morse gave in the *American Journal of the Medical Sciences* for January an admirable exposition of the various forms of infectious diarrhea, and he divides the micro-organisms which are its primary cause into three main classes: the dysentery bacillus in all its forms, the gas bacillus and similar organisms, and thirdly, other organisms, of which the most important are streptococci, the colon bacillus, and the pyocyaneus. It is impossible to determine from the symptoms what form of organism is the cause of the disease, and there is nothing about the stools which will aid in the differentiation except, in rare instances, the peculiar green color caused by the *Bacillus pyocyaneus*, and also in cases where the streptococcus is the cause. In the former instance the green color will disappear on the addition of nitric acid, and in the latter the streptococcus, which is usually present in large numbers, can be easily recognized by the microscope.

Morse describes a simple method by which the presence or absence of the gas bacillus may be determined in from eighteen to twenty-four hours, but very properly adds the caution that in interpreting the results of the test it should be borne in mind that the presence of a few gas bacilli does not necessarily prove that they are the cause of the disease. While it is not usually difficult to differentiate between the two, the only condition with which a typical case of infectious diarrhea is likely to be confused is intussusception, although when the temperature is high and the symptoms of cerebral irritation are marked and develop before the appearance of the characteristic stools of mucus and blood, the affection may be mistaken for some form of meningitis. Here, if from the symptoms and physical signs the diagnosis is not plain, a lumbar puncture will settle it at once. In mild cases of infectious diarrhea, however, it is not infrequently difficult, if not impossible, to distinguish between this and indigestion with fermentation, and in the diagnosis the most important single symptom is no doubt the temperature curve; for while in indigestion with fermentation the elevation of temperature is either very slight or high but of short duration, in infectious diarrhea, although usually not very high, it is constant and continuous. In many instances a positive diagnosis can be made only by means of a bacteriological

examination of the stools, and as regards the presence or absence of dysentery bacilli, there is unfortunately no method for determining this which does not require special media and a fairly well-equipped laboratory. Infectious diarrhea in infancy is always a serious disease, and the prognosis should, therefore, always be a guarded one.

It can readily be understood how the two forms, infectious diarrhea and intestinal indigestion, may overlap each other, as a baby with any form of indigestion is naturally more susceptible to an infection. Intestinal indigestion however, constitutes by far the largest class of infantile diarrheas, and it is met with more constantly at all seasons than the other, which is more often seen in hot weather. The subdivisions under intestinal indigestion adopted by Dennett are made upon the practical basis of the foods previously administered, though if properly interpreted, he maintains, these have a scientific basis too. Simple intestinal indigestion is caused by feeding mixtures containing more fat, sugar, proteid or starch than the infant is capable of digesting, or by feeding these elements in a form which cannot be digested, and most infants with a diarrhea due to such trouble have a combination of fat, sugar and proteid indigestion which perhaps was originally occasioned by one of these constituents only. Indigestion caused by fat is usually due to the use of top-milks or cream, although such feedings by no means necessarily cause indigestion in all infants. Sugar indigestion is caused, of course, by giving too much sugar, and gruels when given in milk and sugar mixtures, are undoubtedly a contributing factor in the causation of diarrhea in very young infants. Underfeeding includes all those cases in which sufficient food has not been given to make the infant gain, and many of these babies have a more or less severe grade of intestinal indigestion, while their "tolerance" (ability to digest and assimilate food) has been gradually reduced during the time this has lasted. Overfeeding is apt to be easier to treat if it occurs in a well-nourished child. The diagnosis of simple intestinal indigestion is not difficult. The onset is gradual and there is no fever. While the stools may vary greatly in color and consistency their odor is generally normal. There is no blood, unless this should be due to some local condition in rectum or anus, and mucus is practically always present.

The fermentative type of diarrhea is caused

and aggravated by the intestinal bacteria which feed upon carbohydrates, and putrefactive diarrhea by those which feed upon protein, and the former is far more common because of the universal custom of giving a large amount of sugar to bottle-fed infants. It is easy to distinguish either of these from simple indigestion by the fact that a low grade of fever (usually from 99° to 102° F.) is present in the fermentative and putrefactive types. Much more difficulty is found in differentiating between the fermentative and the putrefactive type, a bacteriological examination of the stools not being practicable for the general practitioner. Apart from the stools, there are two main points of distinction. First, the fermentative form almost always occurs in the infant who has been fed a high sugar or starch diet, while the putrefactive is met with in infants who have been given strong milk mixtures with little or no starch in them, or in older children who are fed on a mixed diet. The second means of distinguishing between the two is the therapeutic test. A fermentative diarrhea will respond readily to a mixture made up of one-third milk and two-thirds water, the two being boiled together without sugar. In putrefactive diarrhea this treatment will be of no service, but the condition will yield to a starch diet, consisting of a thick gruel. When employing the therapeutic test Dennett states that it is usually better to give a boiled milk mixture to infants under five or six months and the gruels to those over that age, since younger infants are more liable to fermentative diarrhea and older ones to the putrefactive form. The sour odor of the stools in fermentative diarrhea is very characteristic, and the foul odor of putrefactive diarrhea (resembling that of decayed meat) is also very helpful in the differential diagnosis. Again, the reaction of the stools in fermentative diarrhea is always acid, and the acidity usually occasions inflamed buttocks and chafing, while in putrefactive diarrhea it is always alkaline, and the skin is not apt to be irritated.

CARNIVOROUS AND HERBIVOROUS TYPES IN HUMAN EVOLUTION.

As a leading article in this issue of the JOURNAL we publish the initial paper in an important piece of research by Dr. John Bryant on the carnivorous and herbivorous types in man, and the

possibility and clinical utility of their recognition. It is suggested that humankind may conveniently be classified into these two animal types and that upon the basis of this classification valuable clinical differentiations may be made and practical details of hygiene, diet and medical treatment determined.

Roughly speaking, the herbivorous type is short and rotund, the carnivorous tall and lean. These superficial characteristics are paralleled, according to Dr. Bryant's elaborate tabulation, by corresponding contrasts in nearly every detail of anatomy and physiology. On these contrasts and their combinations are based the various so-called diatheses.

As a matter of fact, apart from the important possible clinical bearing of this classification, such a differentiation of human types seems equally of interest from the evolutionary point of view, since probably both types represent diverse lines of development from lower animal forms. Racially the carnivorous type is the more active, energetic and dominant; the herbivorous type more stable, artistic and contemplative. Each has the advantages and dangers of its characteristics: the herbivorous type tends to survive by virtue of its stability, the carnivorous by its superior energy and versatility. On the whole, it would appear as though in the history of the world, progress has been achieved chiefly by successive carnivorous races, which finally perish, falling victims to their inherent defects, and are replaced by the evolution of new carnivorous types from the herbivorous substratum. Probably the carnivorous type is really the superior, though it encounters peculiar perils in maintaining that superiority, and as a matter of fact it appears, certainly in the majority of American communities, that the carnivorous type predominates. This is evidenced by the rapid evolution, in the second and third generations, of carnivorous types out of immigrants of herbivorous type from European countries. Whether this is solely a result of diet or climate is not wholly clear.

Another aspect of possibly considerable significance in this consideration is that in their origin these somatic types are, to a certain extent, sex types; the fundamental feminine type is herbivorous, the fundamental masculine type is carnivorous. Whether this differentiation originally proceeded from occupation is not certain, but seems definitely likely. The man adapted to the hunt acquired height, strength

and the leanness essential for speed, and thus became carnivorous; the woman, adapted to more sedentary domestic occupations, remained herbivorous. Now perhaps the most striking fact of all is, that in the course of evolution, as these types have tended to intermix between the sexes, the physical type of each sex has tended to approximate a common mean; with the progress of that form of evolution which we call civilization, the masculine type has tended to become more feminine and the feminine type more masculine. This is particularly obvious in the present day and generation to anyone thoughtfully engaged in the practice of medicine. Especially is it notable that the short, rotund, typically feminine type is disappearing before the predominance of women of the tall, slender, more masculine physique. Between the masculinized woman and the feminized man there remain, of course, fundamental skeletal and other differences, but the sex types are not so widely diverse as they probably were in remoter times.

It is, of course, impossible to foresee what may be the ultimate course of reciprocal evolution between the carnivorous and herbivorous types. Ideally it should lead to the evolution of a standard human type, in which, as the sex types approach each other, they should be mutually benefited anatomically, physiologically and intellectually. Probably such an ultimate ideal type would be largely a persistence of the carnivorous form by constant absorption from the herbivorous substratum of its mental and physical merits, without its defects. In the lower animal kingdom the ultimate dominance of the carnivore over the herbivore seems established. Such is the story of the past, as written in the chapters of biology. Such, or somewhat similar, may be expected to be the future story of man as written in the later chapters of human evolution.

OPERATION OF THE HARRISON BILL.

IN an insert in the JOURNAL for February 18 we commented editorially at length on the provisions of the new Harrison drug bill, on its relation to the medical profession, and on the duty of physicians in complying with its provisions. One important statement unintentionally omitted in this comment should be called

to the attention of the profession. It is as follows:—

“While the Federal law requires the prescriber to bear the date and full signature of the prescriber, Article 12 of the Regulation makes it necessary that the prescription should carry the patient's name and address as well.”

The Harrison law went into effect on Monday of this week. On or before Friday of this week, March 5, it is the further duty of every physician, if he has not already done so, to take an inventory of all opium, salts of opium, coca leaves, cocaine, alpha and beta eucaine, and preparations containing the same in his possession. This inventory must be sworn to before a justice of the peace and kept on file subject to inspection, together with the record which the law requires of all administration, dispensation or distribution of these drugs after March 1. The office of the internal revenue service of the United States Treasury Department has furthermore called attention to the following statements with reference to the operation of the Harrison law:—

“That the period for which registration must be made before March 1 is from March 1 to June 30, 1915, both dates inclusive, or one-third of the Government fiscal year.

“That the registration fee for said period is 34 cents.

“That the order blanks required under the provisions of the Act will be obtainable from the Collector at \$1.00 per hundred.

“That the word ‘person’ as used in this Act shall be construed to mean and include a partnership, association, company or corporation as well as a natural person.

“That any person who violates or fails to comply with the requirements of the Act shall on conviction be fined not more than \$2000 or be imprisoned not more than five years, or both, in the discretion of the Court.”

PROMPT USE OF DIPHTHERIA ANTI-TOXIN

THE Boston Board of Health has recently issued to physicians in the city a copy of its resolutions, urging the early use of diphtheria anti-toxin in all cases of proved and suspected diphtheria, without awaiting the result of bacteriologic determination. The text of the resolution is as follows:—

“At a meeting of the Board of Health held this day, the following procedure in the use of anti-toxin in the treatment of diphtheria was approved and is hereby recommended to the physicians of the city:

“That anti-toxin be used at the earliest possible moment in all cases of real and suspected diphtheria, without waiting for the bacteriological examination of cultures.

“It is further recommended to consider all cases of croupy breathing in children, which continue six hours or more, as severe cases of diphtheria, *i.e.* laryngeal diphtheria, regardless of other clinical signs or bacteriological examinations. These cases should be treated with single maximum doses of antitoxin and should be intubated within 24 hours from time of use of anti-toxin, unless marked improvement in breathing is noticed; since single maximum doses as above described are far more efficacious than repeated doses of less potency, and therefore should be given in this way, while the practice of giving repeated injections of smaller doses should be abandoned.”

During the preceding week there were 47 cases and seven deaths of diphtheria in Boston. This is not an unduly large number of cases but the relatively high death-rate affords reason for again emphasizing to physicians the cardinal importance of promptness in the administration of anti-toxin to suspected cases. The Board of Health further wisely urges the administration of an immunizing dose of antitoxin to persons who have been exposed but as yet show no signs of infection.

THE FAILURE OF AN IMPORTANT BILL

IN the issue of the JOURNAL for February 11, we commented editorially on the bill then pending before the General Court providing a maximum fine of \$300 for violation of regulations made by the state department of health. This bill was intended to remedy the important defect in the structure of the act establishing this new department in the failure to provide penalties for such violation. In spite of the fact that this obviously desirable bill was advocated by Dr. McLaughlin, the state health commissioner, Dr. Walter P. Bowers and other distinguished representatives of the medical profession, it was summarily defeated in the Senate on February 23 without division or debate. As a result the state department of health, though given full power to make regulations, has no authority to enforce them by the imposition of suitable penalties.

This action of the legislature is a lamentable example of the political methods whereby good forms are frustrated of much of their benefit by refusing complete authority to those whose ability is entrusted with serious responsibilities and duties.

MEDICAL SCHOOL NUMBER OF THE HARVARD ALUMNI BULLETIN

THE issue of the *Harvard Alumni Bulletin* for February 10, 1915, was published as a Medical School number and contains a large amount of material descriptive of the Harvard Medical School and its various departments of activity. There are special articles on medical education by Dr. Edward H. Bradford; on the laboratories, hospitals, libraries and museums by Dr. John Blake; on the history of the Medical School by Dr. Harold C. Ernst; and on its present activities and future plans by Dr. Bradford. The School for Health Officers and the Cutter Lectures are also described. This issue is of particular interest to physicians in general not only for its description of our largest New England school of medicine but also for its evidence of the progress in medical education and research, which is the peculiar property of no school, but which redounds to the benefit and advancement of the profession and of the public at large.

MEDICAL NOTES

GOOD WEATHER LAST WEEK CAUSES LOW NEW YORK DEATH RATE.—During the past week 197 deaths were reported than in the corresponding week of 1914, the rate falling from 16.52 to 11.11 per 1000 of the population. This is a decrease of 2.4 points, which is equivalent to a relative decrease of 257 deaths. This decrease was undoubtedly due to the favorable weather conditions prevalent during the last week. In measles, scarlet fever, whooping cough and typhoid fever the percentage of decreased mortality ranged from 50 to 75%. The effect of good weather conditions was felt everywhere—diarrheal diseases, organic heart diseases, influenza, bronchitis, pneumonia, tuberculosis, Bright's disease and nephritis, all showed some decrease in the mortality rate. The deaths of extremely young infants, that is, those under one year of age, were 68 fewer in

number than in the corresponding week of 1914. Every age group showed a decreased mortality, but none as much as that of the infants. The deaths of old people, 65 years and over, were 60 fewer in number.

The mortality in the City of New York since January 1, 1915 to date has been 13.95 per 1000 of the population as against a rate of 14.85 during the corresponding period of 1914, a reduction of .9 of a point.

AWARD OF THE VIRCHOW MEDAL.—It is announced that the Rudolph Virchow Medal has been awarded by the Berlin Anthropological Society to Dr. Karl Poldt, emeritus professor of anatomy at the University of Vienna.

GOTCH MEMORIAL FUND.—An item in a recent issue of *Nature* states that the University of Oxford has recently received a fund of £550 as a memorial to Dr. Gotch late Waynesfleet professor of physiology. The income of this fund is to be applied to the annual award of a Gotch memorial prize and to the creation and maintenance of a Gotch Memorial Library in the laboratory of physiology.

THE MELLON INSTITUTE.—The new building of the Mellon Institute of Industrial Research was dedicated at Pittsburgh, Pa., on February 26. The principal address was by Dr. Rossiter W. Raymond. In the evening Professor John J. Abel of Johns Hopkins University delivered the first Mellon lecture under the auspices of the Society for Biological Research on "Experimental and Chemical Studies of the Blood and Their Bearing on Medicine."

CINCINNATI MUNICIPAL HOSPITAL.—The new municipal hospital of the city of Cincinnati, Ohio, recently completed, at an estimated cost of \$4,000,000, was dedicated on February 20, with appropriate exercises. The principal address was by Dr. H. S. Pritchett, chairman of the board of trustees of the Carnegie Foundation.

BUBONIC PLAGUE IN HAVANA.—Report from Washington on February 17 states that the usual methods have been adopted for dealing with the recent outbreak of cases of bubonic plague at Havana. Six additional inspectors have been ordered to be employed by the Public Health Service and an expert freight inspector has been sent from New Orleans to examine all freight cars intended for the United States, which shall be labeled and sealed after his inspection before being loaded on a ferry. All vessels from American ports are to be disinfected prior to departure.

DEDICATION OF THE PENNSYLVANIA DENTAL INSTITUTE.—On February 22, the new building of the Evans Museum and Dental Institute of the University of Pennsylvania was dedicated with appropriate ceremony. The building represents a cost of \$1,000,000 and is the gift of the late Dr. Thomas W. Evans, an American Dentist who died in France in 1897.

EUGENIC LEGISLATION IN VERMONT.—A so-called eugenic marriage bill was passed to its third reading in the House of Representatives in the Vermont Legislature on February 23, requiring physical and mental examination of all applicants for marriage license.

"Applicants for licenses would be required, under the provisions of the bill, to furnish a physician's certificate that they were free from transmissible disease. Town clerks would be forbidden to issue licenses to persons of unsound mind, or to any person who was under the influence of liquor or narcotics.

"Persons seeking to evade the law by getting married in another state and then returning to Vermont to live would have their marriage declared void under one section of the bill."

ASSOCIATION OF AMERICAN MEDICAL COLLEGES.

—The annual convention of the Association of American Medical Colleges was held in Chicago on February 15, 16, and 17. At the closing session Dr. C. L. Barden of Madison, Wisconsin, was elected president for the ensuing year. Resolutions were adopted recommending that general hospitals be forbidden to exclude patients suffering with tuberculosis.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

—It is announced that the 109th annual meeting of the Medical Society of the State of New York will be held in Buffalo on April 27, 28 and 29.

"Through the coöperation of the military authorities, the meeting will be held in the 65th Regiment Armory—not the old arsenal, now the City Convention Hall. This armory is one of the largest in the country and will afford accommodations for all activities of the meeting, except the annual banquet. A restaurant will be conducted in the building, there will be ample space for commercial and scientific exhibits, and an abundance of halls for general and section meetings. Even an automobile park will be provided on the armory grounds. No one need leave the building except to sleep, unless possibly to attend lectures to the laity, which will be given by prominent visiting physicians and which will probably be held in the Masten Park High School across the street.

"The choice of the armory is fortunate in another sense, as indicating the organization of the State Society as an arm of the state government. On the last night of the meeting, a regimental parade and review by Gen. Gorgas will be held."

AWARD OF THE SPINGARN MEDAL.—The first Spingarn medal has recently been awarded to Dr. Ernest Everett Just at the annual meeting of the National Association for the Advancement of Colored People.

"The Spingarn medal, which is to be awarded annually to the man or woman of African descent and American citizenship who shall have made the highest achievement during the preceding year in any field of elevated or honorable human endeavor, was given to Dr. Just for his work in physiology and in improving the standard of negro medical schools. Dr. Just, who is only 31, was graduated with the highest honors from Dartmouth in 1907, and is now head of the Department of Physiology in the Howard University Medical School. He was born in Charleston, S. C.

NATIONAL COMMITTEE FOR MENTAL HYGIENE.

—The annual meeting of the National Committee for Mental Hygiene was held in New York on February 17. It was announced that several important gifts have been received for carrying on the work of the organization, \$50,000 from Mrs. Elizabeth Milbank Anderson and \$44,500 from Mrs. William K. Vanderbilt. The Rockefeller Foundation has also contributed for a period of years the services of Dr. Thomas W. Salmon, the medical director of the committee. Dr. Salmon's report of the past year's work dealt particularly with the surveys of conditions carried on among the insane in various parts of the country.

"These surveys, it was stated, mark the beginning of a nation-wide study by the national committee. As a part of the survey work, state societies for mental hygiene are to be organized throughout the country.

Already such agencies are at work in seven states and groups in 20 other states are preparing to organize them. It is these state societies which will carry out the plans for betterment, at the same time conducting work for feeble-minded and for the prevention of nervous and mental disorders."

TRANSFER OF NEW YORK QUARANTINE SERVICE.

—Report from New York on February 17 states that the committee on public health of the New York Academy of Medicine has recently forwarded to Governor Whitman a letter urging the transfer of the New York Quarantine Service from local to federal control and enclosing the report of a committee which has made a special study of the advantages that would accrue from the adoption of such a policy.

"The committee points out that the term of the present health officer of the port expires this month and that it would be an appropriate time for the Government to make the move for transferring the work to the Federal Government. The report shows that in 1913 and 1914 it cost \$96,080 and \$91,900 respectively more to maintain the station than the revenue derived from it."

New York and Boston remain the only two large American cities whose quarantine is still under local administration, and in each the transfer to federal control is approved by the majority of the medical profession in the interests of the public health.

PENDING TUBERCULOSIS LEGISLATION.—It is announced by the National Association for the Study and Prevention of Tuberculosis that legislation dealing with the subject is now under consideration in 32 states of the Union.

In 6 states—Alabama, Arizona, California, Iowa, Tennessee and Washington—bills are being considered which call for the reporting and registration of all living cases of tuberculosis. In Alabama, Connecticut, Iowa, Massachusetts, Pennsylvania and the District of Columbia are working for laws which will require that consumptives who refuse to observe sanitary regulations and are a menace to others may be removed and detained in hospitals. In Alabama, Arizona, California, Illinois, Maine and Missouri, legislation permitting the establishment of county or local hospitals for tuberculosis are being discussed, and in California, Illinois, Iowa, Maine, Missouri and New Hampshire state subsidies of \$3 to \$5 per week per patient are being asked for such institutions. A more or less complete reorganization of the state health work is sought in several states, especially Kansas, Michigan, Minnesota, Nebraska, Texas and Arizona. In Indiana and Alabama bills providing for full-time county and city health officers are being considered.

As an aid in furthering these and similar bills, the National Association has issued a pamphlet entitled "Tuberculosis Legislation," which contains a digest of existing laws in this field with comments and comparisons of some of the most important ones."

In Massachusetts a bill authorizing the trustees of the Boston Hospital for Consumptives to increase beds not exceeding 100 in number for tuberculosis patients in Boston until July 1, 1921, has been reported favorably by the legislative committee on public health.

EUROPEAN WAR NOTES.—On Feb. 17 it was reported to the American Committee of the American Ambulance Hospital in Paris that 92% of the wounded patients thus far received in the institution have been returned to duty. The total mortality of 8% is higher than that of other field hospitals since only the graver major cases are sent to the American hospital. During December and January the hospital was occupied to 75% of its capacity. On Feb. 15 it contained a total of 290 cases. The total amount of money received by the hospital from August 1 to Jan. 1 has been approximately \$440,000, of which about \$20,000 was contributed by Americans resident in Europe. During the months of November, December and January the average daily cost of

each patient was only \$1.51, considerably lower than the rate in any New York hospital.

On Feb. 20 ten additional American Red Cross nurses sailed from New York aboard the steamship *Rochambeau*. Nine are detailed to work at Yvetot, France, and one at Paris.

On Feb. 27, the total of the New York Belgian relief fund amounted to \$941,462.74; the American Jewish relief fund to \$494,779.43; and the American Ambulance Hospital fund to \$346,451.00.

On Feb. 28, the total of the New England Belgian relief fund amounted to \$223,569.04; the Massachusetts Red Cross fund to \$110,636.28; the New England Jewish relief fund to \$38,286.57; the Polish relief fund to \$22,824.97; the New England British imperial relief fund to \$21,479.86; and the Boston Russian relief fund to \$10,787.00.

THE MODERN HOSPITAL PURCHASES THE "INTERNATIONAL HOSPITAL RECORD."—*The International Hospital Record*, which has been published for eighteen years, has been purchased by The Modern Hospital Publishing Company of St. Louis and Chicago and will be merged with *The Modern Hospital*, beginning with the March issue. *The Modern Hospital* is a monthly magazine devoted to the building, equipment and management of hospitals, sanatoria, and kindred institutions. Recently it has opened several new departments relating to public health problems, such as "Philanthropy and the Public Health," "Prevention of Tuberculosis," "Dispensary and Out-Patient Work" and "Life Extension." The editorial offices of *The Modern Hospital* are located in Chicago and the publication offices in St. Louis.

BOSTON AND NEW ENGLAND.

WORK OF MAVERICK DISPENSARY.—The recently published annual report of the Maverick Dispensary of East Boston records the work of that institution for the past year. During this period 5,211 patients were treated, an increase of 41% over the previous year. The expenditures for the same period, however, were increased only 4%. The trustees make an urgent appeal for further contributions to aid the organization in its work.

HOSPITAL BEQUESTS.—The will of the late Laura F. Hall of Lexington, Mass., who died on February 14, was filed on February 20 at the East Cambridge Probate Court. It contains bequests of \$2000 each to the New England Hospital for Women and Children and the Boston Floating Hospital.

IN-STRUCTIVE DISTRICT NURSING ASSOCIATION.—The annual meeting of the Boston Instructive District Nursing Association was held on Wednesday evening of last week, Feb. 24. The report of the director, Miss Mary Beard, stated

that through its eight sub-stations the association during the past year has treated 13,112 patients and its nurses have made 123,065 visits. The total expenditure of the association amounted to \$66,000.

TRANSFER OF PARENTAL SCHOOL BUILDINGS.—The buildings and property of the West Roxbury Parental School have been formally transferred to the trustees of the Boston City Hospital. These buildings will first be used for receiving convalescents from the South Department. They are later to be remodeled at an expected cost of \$225,000, to serve as a children's hospital.

BOSTON MILK AND BABY HYGIENE ASSOCIATION.—It is stated by the Boston Milk and Baby Hygiene Association that of the 4097 babies cared for at its milk stations during 1914, over 40% were brought voluntarily by their mothers. Nurses of the Board of Health brought 18½%, physicians 13½%, milk station agencies 13%, district nurses 10%, settlements 2½% and relief agencies 1%.

ST. MONICA'S HOME.—The recently published annual report of St. Monica's Home for sick colored women and children in Roxbury, Mass., records the work and progress of this institution for the year 1914. During this period 48 new patients were admitted and a total of 65 were cared for. The principal item of interest in the report is the announcement of the acquisition by the institution of a four-story brick house adjoining its property. This building will be remodeled and connected with the present home, enabling improved accommodation for attendants and a re-arrangement of the present wards to admit a larger number of patients. For this purpose and the payment of the mortgage on the new property a sum of \$6000 will be required and generous public subscriptions for this amount are earnestly solicited.

FREE PUBLIC HEALTH LECTURES.—On Wednesday of last week, Feb. 24, was given the first of a series of free public health lectures at 6 Marlborough Street, Boston, under the auspices of the committee on public health education of the American Medical Association and the department of public health of the Women's Municipal League of Boston.

The addresses at this first meeting were by Dr. Walter E. Fernald, Dr. George L. Wallace and Messrs. C. C. Carstens and James E. Fee. Dr. Fernald stated that there are 7,000 known feeble-minded persons in this state and that feeble-mindedness is rapidly on the increase throughout the community. Dr. Wallace advocated the appointment of special expert health officers to detect defectives and secure their commitment to state institutions.

The other four lectures will follow on the Wednesdays in March.

MASSACHUSETTS GENERAL HOSPITAL.—The recently published 101st annual report of the Massachusetts General Hospital records the work and progress of that institution for the year 1914. During this period a total of 6712 patients were treated in the wards and 24,957 out-patients made a total of 158,000 visits, 11,000 more than in 1913. The total number of patients in the convalescent home was 681. Particular emphasis is laid on the need of the hospital for a new administration building, a private ward and a nurses' home at Waverley for the McLean Hospital. In speaking of the need of an administration building, the report says:

"The main entrance to the hospital is now at the end of the Bulfinch Building on Blossom street. It is at the extreme end of the great hospital plant, instead of in the middle, where it should be. Patients and their friends and visitors to the hospital must go through the narrow, dark and crowded corridors of the building erected 100 years ago.

"There is no suitable waiting room, no proper reception room. The business offices are much overcrowded. It is impossible to do the work of the hospital administration in the way that we would like to do it with the tools at our command."

Particular attention is also called to the need of hospital accommodation for persons of moderate means who are often less well cared for medically than the really poor. Of these the administrator's report further says:—

"This group in the community must often be ill in their homes, dependent upon physicians who cannot provide the necessary laboratory tests and scientific examinations which are readily available in a general hospital. I appeal to generous benefactors to help this group. I am convinced that the way to do it is to erect a hospital building for them in connection with first-class general hospital."

EPIZOOTIC OF FOOT AND MOUTH DISEASE.—Several new cases of foot and mouth disease have been discovered in various parts of Massachusetts during the past week. Six cases are now known to have occurred at Waltham, Mass. and several in Weston and Watertown. Two hundred infected and exposed cattle have been condemned in these three towns. On Feb. 1 cases were discovered in Lexington and Southboro, and in Lexington over 300 animals have been condemned for slaughter. Both Maine and Vermont have forbidden the shipment of livestock into their territory from Massachusetts until this recurrent epizootic is at an end. On Feb. 20 Dr. Lester H. Howard, commissioner of animal industry, issued a statement announcing that this secondary outbreak is now well under control. This secondary epizootic has assumed considerable proportion, 522 cattle having been infected or exposed in 15 different communities. In the first outbreak 1156 cattle were infected and 32 cities and towns were involved.

"The cities and towns in which the disease has been discovered and which have been quarantined as a result, are Worcester, Springfield, Chicopee, Waltham, Arlington, Watertown, Weston, Lexington, Northboro, Southboro, Holden, New Braintree, Oakham, and South Attleboro. Although the Department of Animal Industries has not placed a state-wide quarantine on cattle, in all of the communities which have been mentioned the commissioner has refused to allow the transportation of any cattle without a permit, which is issued only after an investigation has been made by an agent."

On Feb. 22 several cases of the disease were discovered at Middletown, R. I., where 71 animals were slaughtered. On the same day fresh centres of infection were discovered in Jefferson, Oldham, and Bullitt Counties in Kentucky, where quarantine has been extended and 1000 cattle slaughtered. A circular letter has been issued to the county judges, urging them to call mass meetings and organize vigilance committees to combat the disease. On Feb. 23 the United States Department of Agriculture extended its quarantine over the states of Illinois, Indiana, Iowa, Michigan, New Jersey, New York, Ohio, Pennsylvania and Wisconsin.

One county in Illinois, one in New Jersey, two in New York, two in Pennsylvania, and a portion of one in Iowa were added to the closed area. All of Michigan, with the exception of three counties, recently was placed in a restricted area.

On February 24, in view of the recrudescence and progress of the epizootic of foot and mouth disease in Massachusetts, Governor Walsh issued a formal proclamation to cattle owners in this State warning them of the imminence of a renewed declaration of universal quarantine. The text of this proclamation is as follows:—

"Whereas, the foot and mouth disease still exists among the cattle, sheep and swine of 18 states of the Union, and new cases are constantly developing in different parts of the Commonwealth; and,

"Whereas, it is proven that the contagion may be carried not only by persons and animals, but by all forms of merchandise, and therefore the livestock interests of Massachusetts will continue to be endangered until the disease is entirely eradicated from the country; and,

"Whereas, the further spread of the disease will involve large expenditures of money on the part of the state and may render necessary the destruction of large numbers of cattle, sheep and swine, together perhaps with the inauguration of a state-wide quarantine, to the serious inconvenience and loss of stock owners; and,

"Whereas, if the disease is not eradicated from the state before the season for pasturing cattle arrives, cattle owners will be subjected to additional loss from the necessity of keeping all cattle confined in buildings in the infected areas and of feeding them without resort to summer pastures;

"Now, therefore, I, David I. Walsh, Governor of the Commonwealth, do earnestly urge all stock owners to realize their responsibility in this matter and, accordingly, in their own interest as well as for the public good, to exercise more than ordinary care in looking after the welfare of their animals; for one of the most effective means of preventing the spread of this disease is the maintenance by individuals of a strict quarantine of their own premises.

"I call upon all good citizens to comply strictly with all orders and regulations of the Commonwealth's Department of Animal Industry. The department will gladly furnish stock owners with information regarding the best methods of guarding against the infection and the most effective ways of quarantining their premises."

On February 25 a case of foot and mouth disease was reported at Everett, Mass. The city was quarantined and the exposed herd of twelve cattle was slaughtered.

Miscellany.

SANITARY CONDITIONS AT THE BOSTON IMMIGRATION STATION.

THE recently published report of the United States commissioner general of immigration for the fiscal year ended June 30, 1914, contains some not altogether favorable comment on sanitary conditions at the immigration station on Long Wharf, Boston.

"The medical officer in charge of the station refers in his annual report to the fact that the detention quarters and their appurtenances are kept in a mechanical state of cleanliness that never fails to elicit favorable comment from visitors. But in spite of such efforts, he adds, the partitions and ceilings, which are constructed of matched boards, 'have now finally become hopelessly infested with vermin.' Referring to the dormitories the medical officer speaks of the insanitary conditions and the efforts made to prevent morbidity among the inmates. 'For considerable periods during the past year the number of detained passengers held at the station has averaged over two hundred, and from time to time the limit of sleeping capacity has been practically reached. Catarrhal affections, bronchitis and tonsillitis, or septic sore throats, have been constantly prevalent in spite of the fact that persons showing symptoms of throat trouble are always immediately removed from the station. Slight wounds or scratches received by inmates or immigration employees working about the station almost invariably become infected. During the winter at least one probable case of typhus fever was removed from the station under circumstances pointing to possible infection in the station itself. Twice during the

winter it was deemed advisable to remove all the inmates of the station to the local (municipal) quarantine station and clean them and subject their clothing to steam disinfection. In the meantime the detention quarters themselves were disinfected so far as it is possible to do so.'

'A few months ago a family of detained aliens was reported by one of the surgeons as showing 'in general' no tendency to cleanliness, with the result that their clothing had been found alive with vermin. This has caused numerous complaints on the part of other inmates trying to keep clean with our limited facilities.' Occasionally, indeed, the environment here proves to be literally intolerable.

'Such conditions can scarcely lay claim to the term civilized. What must be the impressions of our prospective citizens toward the Government that meets them with this welcome to the promised land? The Government can hardly excuse itself on the plea that the immigrants come of their own volition and not at the Government's invitation. The aliens come in good faith with the knowledge that they must pass the governmental inspection. It is through no choice of their own that they become our involuntary guests. The primary dictates of humanity point the need of radical reform in existing conditions and standards. There is no sufficient reason why Congress should not be willing to expend for the proper enforcement of the immigration laws at least the amount collected from head tax on immigrants. As a matter of fact less than half that amount is ordinarily consumed.

'The erection of a modern immigration station at the port of Boston was authorized by an act of Congress approved Feb. 23, 1909. The sum of \$100,000 was appropriated, a part of which was spent for a site in East Boston. By reason of a proposed change in the harbor line the original site was exchanged for another, which involved an additional payment. In succeeding years the sum of \$275,000 was added to the original appropriation, making a total of \$375,000. Plans were eventually prepared. In June, 1914, somewhat over five years from the date of the authorizing act, the Government is advertising for proposals to erect the station.

'The weakness of the present medical inspection at Boston, is due to the lack of adequate provisions for making what may be called the secondary examination in the case of those individuals, who, at the primary examination, are recognized and detained as abnormal. The lack is general in its nature. There is in the first place an insufficiency of medical inspectors. Finally there are no hospital accommodations at the immigration station. It thus becomes necessary to transfer a large proportion of those cases requiring extended examination, physical or mental, to various local hospitals and to depend upon the staffs of those institutions for the actual examinations. And in spite of the various makeshifts to overcome existing handicaps, tardiness in completing the medical examination of arriv-

ing immigrants has been a subject of frequent and justifiable complaint.'

MEMORIAL RESOLUTIONS.

RESOLUTIONS OF THE STAFF OF THE CARNEY HOSPITAL ON THE DEATH OF DR. HASKET DERBY.

Resolved (1), That in the death of Dr. Hasket Derby, the Carney Hospital has lost one of the oldest members of its staff, and the founder of the eye department of the hospital, with which he was connected for 37 years;

(2) That the staff has lost a strong and loyal worker, and one who has been ever conscientious and just;

(3) That the profession has lost a distinguished and active member, a specialist from the beginning, whose good works and efforts in the cause of ophthalmology here and elsewhere have long been recognized;

(4) That Dr. Derby's many friends, while feeling keenly their loss, will recall with the deepest pleasure a pleasant companion, a man of polished manners, genial conversation and high ideals; and

(5) That these resolutions be spread upon the records and that copies of them be forwarded to Dr. Derby's family, and to the BOSTON MEDICAL AND SURGICAL JOURNAL for publication.

(Signed)

FREDERICK W. JOHNSON,
DANIEL F. MAHONEY,

Committee.

RESOLUTIONS OF THE STAFF OF THE CARNEY HOSPITAL ON THE DEATH OF DR. JAMES G. MUMFORD.

ALTHOUGH his later work called him elsewhere, Dr. James G. Mumford was in his early professional life connected with the surgical staff of the Carney Hospital. It is fitting, therefore, that some expression of our regret be put on record. Hence, be it

Resolved (1), That in the death of Dr. James G. Mumford there passed a man whose life splendidly exemplified a spirit of rugged honesty, patient heroism and sincere devotion to his profession that has seldom been equalled and that is in every way worthy of emulation;

(2) That to us who are still in the ranks of the workers, the memory of his life should be a forceful aid in holding fast to the ideals of our profession and in enduring with courage and equanimity the burdens that life may put upon us; and

(3) That an expression of our sympathy be forwarded to Mrs. Mumford, and that these resolutions be spread on our official records and that a copy be sent to the BOSTON MEDICAL AND SURGICAL JOURNAL.

(Signed)

JOHN T. BOTTOMLEY,

Committee.

Correspondence.

THE TREATMENT OF DRUNKARDS WHO BECOME PUBLIC CHARGES.

Boston, February 26, 1915.

Mr. Editor: Over 100,000 arrests for drunkenness are made in this state every year. The expense thereof to the Commonwealth must approach, if it does not exceed, a million dollars annually. For more than a century these people have been treated as criminals by arrests, fines and imprisonment. What has been the result? Aside from the temporary relief to the community, practically nothing has been gained by this mode of procedure. Few, if any, have been reformed. On the contrary character has been smirched, self respect has been destroyed, many have become social outcasts and not a few have become criminals, and the evil is steadily increasing.

In view of past experience the policy of treating inebriates as criminals has been anything but satisfactory in a sociological sense. While some of these unfortunates are mentally defective, yet all are lacking in sufficient will power, or in a disposition to resist the desire for alcohol. In other words, by the abuse of liquor, they are rendered unfit to care for themselves or their families. Somebody must do it for them. The problem is, what shall be done with drunkards who become public charges.

The most sensible scheme that has hitherto been suggested lies along the following lines. Instead of sending intoxicated persons to station houses, or jails, let them be taken to detention hospitals, which shall be a clearing house for the reception and disposal of these cases. Simple drunks may be cared for there until they are sober, when their ultimate disposal will depend upon conditions. Delirium tremens, feeble minded and insane cases are to be sent to appropriate places for treatment and control. Inebriates should remain in custody, until in the opinion of the proper authorities, they are sufficiently recovered to be entrusted in the community. On leaving an institution they should remain under supervision of the officers of the out-patient department of the reception hospital so long as may be necessary. These unfortunate victims of the drink habit should be encouraged and guided, and made to feel that there is a place for them to fill decently and well in the community, that they are neither criminals nor hopeless defectives. Through various means, not a few inebriates have been made useful citizens.

Massachusetts has wisely adopted this policy and it only remains to carry it to its full development. It has established the Norfolk State Hospital for male drunkards and drug victims. The farm consists of 1,000 acres of land beautifully located about 20 miles from Boston. Buildings for accommodation of two hundred inmates have been erected and are in use. The hospital is over-crowded and should be enlarged so as to at least double the present capacity as soon as may be. The work now being done by Dr. Neff and his assistants justifies a liberal expenditure for the further development of the institution. More than one-third of those who have passed through this hospital have been distinctly benefited, a result that has never been obtained in this Commonwealth under any other plan.

Instead of spending their time in loafing, smoking, playing cards, billiards, etc., as was formerly the custom in retreats for inebriates, these patients are required to work at appropriate occupations under careful supervision, thereby compensating the state very so much for the expense incurred in their behalf. To complete the scheme a certain portion of their earnings should be devoted to the support of their families, or dependents.

The chief object of this note, Mr. Editor, is to call the attention of the medical profession to this admirable work and to urge its members to favor its

prosecution to its fullest possible extent. No more important sociological problem faces the community today. None realize the havoc produced by the abuse of alcohol more keenly than the physician. (A medical friend once told the writer that prohibition in his town was worth a thousand dollars a year to him!) To say nothing of the economic waste, the misery and suffering, both mental and physical, of the unwise use of liquor are well known to everybody. While complete reform of the evil is not to be expected, yet much can be accomplished by well-directed efforts along rational lines. The Norfolk State Hospital offers the best opportunity for this work known to this generation. The members of the legislature should be seen personally by the physicians of the state and urged to grant the appropriations asked for by the trustees of the hospital to extend its facilities for the important work in hand. The medical profession is not backward in doing its duty by the public. Here is another opportunity to help a most worthy project.

GEORGE W. GAY, M.D.

A MISAPPREHENSION CORRECTED.

Boston, February 23, 1915.

Mr. Editor: Although it is very repugnant to my feelings to call any public attention to troubles of my own, I feel compelled to ask your assistance in contradicting a statement which has recently been brought to my attention from several sources among the profession and the laity, viz.: that I have retired from practice and am giving up my cases to others. I feel impelled for more reasons than one, therefore, to make a somewhat public statement that there is not the slightest truth in any such report. It is neither my intention nor my wish to retire from the practice of my chosen specialty, to which I have devoted many years, while my health remains as excellent as at present, and so long as my colleagues in the profession, or patients, are kind enough to seek my counsel.

With my apologies for what seems to me a necessary encroachment on my part upon the time and the patience of yourself and your readers, I am

Very truly yours,

VINCENT Y. BOWDITCH, M.D.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING FEBRUARY 20, 1915.

CONTRIBUTIONS.

Dr. Sylvester McNamara, Brooklyn, N. Y.....	\$ 5.00
Dr. J. Watanabe, Seattle, Wash.....	5.00
Anonymous—B., Pittsburg, Pa.....	30.00
The Erie County Medical Soc., Erie, Pa.....	25.00
Dr. Hugh Cabot, Boston, Mass.....	25.00
Dr. E. Evans, La Crosse, Wis.....	10.00
Dr. W. J. Herrington, Bad Axe, Mich.....	10.00
Otero Co. Medical Society, La Junta, Colo....	25.00
Vermilion Co. Medical Society, Danville, Ill....	25.00
Dr. Eva Charlotte Reid, San Francisco, Cal....	5.00
Dr. Howard Carter, Webster Groves, Mo.....	5.00
Dr. G. H. Torney, Brookline, Mass.....	5.00
Dr. John B. Murphy, Chicago, Ill.....	100.00
Dr. D. E. McGilivray, Port Angeles, Wash....	5.00
Dr. Charles N. Spratt, Minneapolis, Minn.....	100.00
Dr. J. M. Thorne, Pittsburg, Pa.....	5.00
Westerly Physicians' Assn., Westerly, R. I....	10.00
Dr. J. P. Long, Chicago, Ill.....	1.00
Dr. Roy Sexton, Streator, Ill.....	5.00
Dr. D. E. Cornwall, St. Maries, Idaho.....	5.00
Aesculapian Club of Buffalo, Buffalo, N. Y....	25.00

Pocatello Medical Society, Pocatello, Idaho..	10.00
Dr. A. R. Thomas, West Eaton, N. Y.....	5.00
Receipts for week ending Feb. 20.....	\$ 446.00
Previously reported receipts.....	\$3133.00
Total receipts.....	\$3579.00
Previously reported disbursements...\$3135.00	
Disbursements, week ending Feb. 20,	
200 boxes food @ \$2.20 per box..\$	440.00
Total disbursements.....	\$3575.00
Balance	\$4.00

F. F. SIMPSON, M.D., *Treasurer.*

APPOINTMENTS.

Dr. A. Bethe has been appointed professor of physiology at the new German University of Frankfurt and *Dr. Rudolph Höber* has been appointed professor of physiology at the University of Kiel.

The following veterinarians have been appointed to constitute the staff of the New Angell Memorial Hospital for Animals: *Dr. F. J. Flanagan* of Toronto, Chicago and Philadelphia; *Dr. H. F. Dailey* of Philadelphia; and *Dr. D. L. Boulger*, *C. A. Boutelle* and *J. B. McDonald* of Boston.

RECENT DEATHS.

DR. FRANK FULLER, who died on February 19 in New York City, was born in Boston in 1827. He early began the study of medicine as an apprentice to *Dr. Benjamin Hubbard* of Plymouth, Mass., and later studied dentistry under *Dr. John Gunn*. He began the practise of his profession as a physician and dentist at Portsmouth, N. H., in 1860, but at the outbreak of the Civil War entered the Second New Hampshire regiment with which he went to Washington. He was soon appointed secretary and later governor of the Territory of Utah and administered its affairs throughout the war and for some time thereafter. In 1874 *Dr. Fuller* returned to New York where he continued to reside until his death.

DR. HENRY L. NICHOLS, who died recently at Sacramento, Cal., was born at Augusta, Me., in 1823. He began the practise of his profession in Augusta but removed in 1865 to Sacramento, where he served for many years as city physician. He is survived by one sister.

DR. CHESTER MONROE BAKER, a graduate of the Long Island College Hospital in 1896, died at his home in Hyannis, Mass., Dec. 12, 1914, aged 39 years. He was a Fellow of the Massachusetts Medical Society.

DR. JAMES JOSEPH SCANNELL of Brighton died at the Carney Hospital, South Boston, Mass., February 19, of pneumonia, following an operation for ulcer of the stomach. *Dr. Scannell* was born in Boston Sept. 28, 1875, and was a graduate of the Tufts College Medical School in 1905. He was made assistant director of the bacteriological laboratory of the City of Boston in 1910, succeeding *Dr. B. L. Arms*, and later became director, a position he filled at the time of his death. He was a Fellow of The Massachusetts Medical Society and of the American Medical Association. He is survived by his widow, three daughters and two sons.

DR. HENRY CECIL HAVEN died of heart disease at his home "Glenburnie" at Stockbridge, Mass., February 19, aged 62 years. He was born in New London, Conn., Sept. 15, 1852. He was graduated from Amherst College in 1873, and from the Harvard Medical School in 1879. He practised in Boston from 1879 to 1899, being physician to the West End Nursery and Infants' Hospital, and physician to the Children's Hospital for a part of this time. Then he removed to Stockbridge, where he has since resided. He had been

a Fellow of The Massachusetts Medical Society since 1878. He married Mrs. Isabel Winthrop in 1899. She died in 1905.

DR. DAVID HYSLOP HAYDEN, a Fellow of The Massachusetts Medical Society since 1869, and its librarian from 1872 to 1884, died at his home in Lynn, on February 21, aged 75 years. He graduated A.B. at Harvard in 1859 and M.D. at the same university in 1863; was assistant surgeon in the navy during the Civil War, and afterwards studied in Paris and Vienna, and then settled in practise in Boston but was obliged to retire on account of ill-health; since which time he had resided in Newport and later in Lynn. He is survived by one daughter.

DR. JOSEPH PALMER WATTS, a Fellow of The Massachusetts Medical Society, died at his home in Wakefield, Mass., February 18, aged 32 years. He was a graduate of the Harvard Medical School in the class of 1905.

DR. HENRY CUTLER BALDWIN, of Boston, died of uremia at the Massachusetts General Hospital, February 25, aged 55 years. *Dr. Baldwin* was born in Roxbury October 27, 1859, and was a graduate of Harvard College in the class of 1880 and of the Harvard Medical School in 1884. He was for many years physician to out-patients at the Free Hospital for Women, and later, and up to the time of his death, physician for diseases of the nervous system at the Massachusetts General Hospital. He was a member of the American Medical Association, a Fellow of The Massachusetts Medical Society, a member of the American Neurological Society, the Boston Society of Psychiatry and Neurology, The American Medical and Psychological Association, the Boston Medical Library and the Boston Society for Medical Improvement. He is survived by his widow.

DR. CHARLES OSBORN TUPPER, who died of influenza recently at Brooklyn, N. Y., was born at Amherst, Nova Scotia, in 1862, a son of a physician. He received his medical education at the Medical College of Arcadia, Canada, and at the Jefferson Medical College, Philadelphia. He had practised his profession in New York since 1888. He is survived by his widow.

SOCIETY NOTICES.

MASSACHUSETTS SOCIETY OF EXAMINING PHYSICIANS.—A meeting will be held March 10, at Hotel Lenox. Dinner at 6.30 P.M.

Papers will be read by:

1. *Dr. Rosalie S. Morton*, Hon. Chairman of the Public Health Education Committee of the A. M. A. "The Effect of Industrial Strain on Working Women."
2. *Dr. Richard C. Cabot*. "Social Service as an Aid to the Physician."
3. *Dr. J. W. Sever*. "Massage and Manual Manipulation in After-Treatment of Fractures and Allied Conditions."

All members of the profession interested are invited.

J. H. STEVENS, M.D., *Secretary.*

NORFOLK SOUTH DISTRICT MEDICAL SOCIETY.—Meeting for Medical Improvement at United States Hotel, Boston, Thursday, March 4, 1915, at 11.30 A.M.

Reader: *Dr. Oliver G. Tinkham*, of Boston, Mass., for *Dr. C. A. Sullivan*, of South Braintree, Mass. Subject: "Vein Infection."

F. H. MERRIAM, M.D., *Secretary,*
South Braintree, Mass.

BOOKS AND PAMPHLETS RECEIVED.

Transactions of the Twentieth Annual Meeting of the American Laryngological, Rhinological and Otolological Society held in Atlantic City, N. J., June 19 and 20, 1914. Paul B. Hoerber, 1914.

The Boston Medical and Surgical Journal

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Address

SUPERSTITION AND THE DOCTOR.*

By OWEN WISTER, PHILADELPHIA.

DEEP down at the feet of the sky-scrappers in our cities, hordes of men crowd and pass incessantly. The intersecting streets cut slits between tall, sheer blocks of commerce, and all day long through these the traffic pours. From a top story you can watch the human specks below. Some of them hurry, some loiter, meeting and parting. They are in vehicles or afoot, they forge ahead, fall behind, keep abreast—but whatever they do, without end do they move and mingle and pass. Yet their sum is stationary, the concourse is always there. Specks join this mass and leave it on their particular orbits, but itself is a constant spectacle, down on the floor of the great stone valley between the sky-scrappers.

Constant through each year this spectacle has been constant through all the years since cities have stood upon the earth; the changing specks, the unvarying throng, the presiding walls of commerce, justice, religion. Look back across the stretching ages to the earliest day we know; two-wheeled chariots, kings, prophets, conquerors, slaves, naked athletes and painted idols—these gleam against that distant dawn, and from these the throng unbroken comes down between Grecian pillars, and Roman walls, and Gothic arches to us and our automobiles. A vast and

motley panorama of change—but how deep does the change go? What things happen in our throng, unknown to London when Chaucer was there, unknown to the Rome of Caesar, or unknown six thousand years ago where Babylon's temples rose above the specks that peopled its two hundred square miles of area? Babylon's patron god was Marduk—but what new gods can change the eternal identity of the crowd, and what new variety of man has been discovered since Sargon of Akkad built sanctuaries by the river?

Ourselves—for this is exactly what we shall here attempt to consider in a certain particular light—ourselves today, together with ourselves while we were building the pyramids, and all the peoples between that time and the present—we, the human race, have not had time to change much. If this earth, our planet, has a point of view, we have been here only a day or so in her count of time. Our own records don't go back ten thousand years; to her we are newcomers; she waits to know us better before according us her intimacy. On the other hand, we regard an acquaintance who has reached the age of eighty as being very old—and in this we are perfectly right. A thousand miles is a long walk, but no distance to telegraph. And, as we can easily think of a thousand miles in these two ways at once, so for our present purpose must we think of ourselves in two ways at once—as having existed on the planet both a long while and a short while; that is our double relation to Time.

As the features and anatomy of men persist, so do the component parts of the crowd. Dissect it, take its various specks and classify them,

* An essay read April 29, 1912, before the College of Physicians, Philadelphia; and Dec. 14, 1914, before the Johns Hopkins Historical Society, Baltimore.

some will be rare, some numerous, but all will be repetitions. We worship, we speak, we dress, on and on through the ages, and through the ages we govern, trade, fight, carve, build; the professions are perpetual, and since the beginning, man has but iterated and reiterated himself—only ever more and more articulately.

Rain, rain, go away,
Come again another day.

Have you heard something like this before? The children of England have been repeating it for no one knows how many generations. The children of Athens had their version of it before Sophocles danced at the theatre; their chant ran:—

ἔξῃχ' ὦ φῶς ἦλαε
Shine forth, sweet sun!

What chronicle, no matter how archaic, that does not include the priest, the soldier, the statesman, the lawyer, the doctor, the money changer, the merchant, the man of science, the scholar, the artist, the writer, the man of idleness, the man of crime? We might perchance add to these a certain eternal couple, the charlatan and the genius—the man of shams and the man of dreams—they are the chief characters in the drama of mankind, and we shall come upon them continually in this discourse; but they generally appear wearing the aspect of one of the others, and so fall not quite accurately into classification with the rest.

To see ourselves as classified dots in a procession six thousand years long is to see that our similarities to the ancients are really greater than our differences from them; and it seems that we are all about as wise and about as imbecile as we were in the days of Sargon of Akkad, and ten fools in Babylon could match any ten in America. Time has neither killed nor created anything in us. Our mental costume changes, not our mind. Behind a long series of masks, Credulity's face is identical, and we can be divided into those who believe that twice two makes four and those who believe it can make five if you find the secret. Or take the Philosopher's Stone. We smile at the fond alchemists, but in the year 1911 in these United States \$77,000,000 were paid to get-rich-quick fakirs, now convicted of fraudulent use of the mails. Seventy-seven millions to fakirs who have been caught—how many millions more to those uncaught? Their schemes were far more transparent to common sense than ever Alchemy was to the mediæval mind. But it is not alone in our crass foibles that we repeat the ancients; we are also like them in more flattering ways, and here is a subtle example. In our medical writings, delicacy leads us to avoid certain Saxon terms, and employ Latin in their stead. As we use Latin, the Latins used Greek. It is from a Roman medical treatise I take the following sentences:—

"The terms . . . are among the Greeks tolerable enough, and now in general use; for they are met with in almost all medical works and

treatises; our vernacular terms are coarse, and not . . . in use among those who had a due regard to modesty in their discourse."

This was written 2000 years ago. And since I am quoting Celsus to show the ancients and ourselves identical, let me quote him again:—

"It is of importance to know whether fatigue has brought on a complaint, or thirst; whether it has been occasioned by cold, heat, or watchfulness, or by hunger. . . That which singly has not the power of exciting disturbance may, conjointly with other causes, do so in the highest degree. The man who is free from disease and vigorous. . . ought not. . . to require. . . the physician. . . He ought to vary his mode of living; sometimes to pass his time in the country, sometimes in town, but more frequently in the open fields. . . But although exercise and food be necessary, the training adopted by wrestlers is superfluous. . . because when the training is interrupted by urgent business, the system becomes depressed, and bodies brought in this way to a high condition very soon age and fall into a state of disease. (You see Celsus knew this before the careers of some of our graduate athletes led us to discover it in the last twenty years.) "But for the delicate" (continues Celsus), "in which class may be enumerated the majority of persons living in large towns, and almost all literary characters, stricter precaution is necessary, in order that they may regain by vigilance what they lose from the very nature of their constitutions, places of abode, and occupation. . . Now the chief means. . . is exercise. . . more severe with him who has been studying less hard . . . and gentle with him who is exhausted."

I suppose that many a good lesson has been learned and forgotten several times in the course of history, and that at each re-discovery our complacency has called it "modern."

This Aulus Cornelius Celsus was a blend of various capacities; he wrote, beside his medical treatise, three others, upon the military art, upon rhetoric and upon agriculture. He serves to warn us—if warning be necessary—that in dealing with the changing specks and the unchanging professions we must not be too clear-cut or too dogmatic in our classification. Michael Angelo was another blend of several capacities; it were easy to name many more. Does not every man contain all his ancestors? Most of these are silent in him. They will take their turn at speaking aloud again in the generations that spring from him. Yet here and there in our own acquaintance do we come upon these blends of capacities, these individuals in whom more than one ancestor is articulate. We know great doctors who have written famous novels; great lawyers whose dearest taste is exquisite pictures; in Boston we all know of a banker whose desire was to have been a musician, and who has consoled himself by giving a great orchestra to his city. Therefore let us emphatically recognize that many a man could have specialized va-

riously; could have walked with credit along two or three paths, and in our sketch of the evolution of the doctor, and of the fragments into which the original prehistoric healer has been gradually split, our stress is to be laid exactly upon the multiplicity of the ego, upon the Chinese nest of characters that any one of us may well be.

We human beings remain so strange, so elusive, so inveterately beyond all logic, that self-contradiction is part of our very harmony. What do we see at the beginning of every doctor's prescription? A sort of thing that looks like an R, but this is the crumbled remnant of the symbol of Jupiter. Astrology still keeps the tip of her finger in the pie. Whatever be our gods, is there one among us who does not foster a pet private superstition tucked away in some crevice of his reason? Dinners of thirteen are seldom eaten at ease. In Baltimore two lives were lost by fire in a house whereof the street number was thirteen. Thereafter nobody would rent it until its number was changed to eleven-and-a-half. Friday is not a favorite day for starting upon a voyage, even with some landmen. Thus, from the Crucifixion and the Last Supper do we derive not only our salvation and sacrament, but also the two curses which hover over Friday and thirteen. Scarce a week goes by but we see an acquaintance "touch wood" by way of propitiation to the unseen powers; nor is it altogether in jest that he does so; it is the ancestral impulse of magic surviving in him, although he seldom knows it is the virtue of the true cross he thus invokes. Undying is our animism, our pantheism, our "vecchia religione"; science has not killed our intuitive affinity for signs, charms, amulets and methods occult; fragments of the most ancient divination survive with rites and observances gathered from each succeeding epoch. A sick Australian native is still connected by a thread with the magician, and thus cured. "Absent treatment" is our American wireless form of this. The Italian in our slums still takes home the doctor's prescription, and, holding it, watches oil dropped in a bowl of water. As the drops float left or right, the omen declares for or against the prescription. To be sure, says some one, such puerilities are to be expected in Australia and in slums, but hardly among those who dress for dinner and have a box at the opera. Yet I know a doctor whose patient wrote to him from Bar Harbor that her pet dog had bitten her. The dog was quite well, but had it not best be killed, lest it subsequently go mad and the bite prove dangerous? The hostess we dine with may not carry a rabbit's foot, but she may likely enough gaze in a crystal ball, or possess and credit a horoscope. It is not many years since *Planchette* frightened fashionable society most agreeably, and the future is still read in the palms of many hands.

The late head of the British Museum was an ardent believer in astrology. Puerilities we may

call these things, *Planchette*, the drops of oil, the crystal ball—puerile we may consider the eminent scholar in the British Museum, as well as the following extract from an important newspaper:—

"DAILY HOROSCOPE.

"The Stars Incline, But Do Not Compel."

"Wednesday, April 17, 1912.

"Mercury doth teach

"Subtle wit and speech.

"Under this rule astrology warns people to beware against those who use subtle arguments, hair-splitting speech and logic and specious, witty wheedling words and actions.

"It is declared also to be a day when it is well to be extremely cautious in dealing with fickle and whimsical persons and with those who change and vary in their opinions and desires.

"It is held to be an unfortunate day for indulging in caprices, moods and passions.

"Mercury in beneficent rule is said to grant keenness of perception and intuition this day, and also to enhance the originality and resourcefulness.

"Invention, science, mechanical skill, artistic crafts and processes that require deftness are said to be ruled with extraordinary power for luck this day.

"Saturn, rising over the United States at this period of new moon, does not make a fortunate aspect and afflicts particularly the east. Uranus, on the upper meridian, is held to make an influence for strange attitudes on the part of large and powerful classes, leading them into erroneous channels. It is predicted that there will be an unusual amount of political excitement and much discord among the various governing bodies.

"New York, it is stated by English astrologers, is under a rule foreboding great afflictions, depression and discord.

"There also is a sign governing the world in general, foremening disasters at sea."

"It is an evil lunation for rulers.

"Herbal astrology selects today as good for parsnip, dill, carraway, carrot, endive, fern, lavender, licorice, lily of the valley, hazel nut, marjoram, olive, mulberry, oats, myrtle, parsley, valerian, savory and calamint under Mercury

"It is also said that household signs are excellent for baking.

"Persons with this birth-date are ruled for success and achievement during the twelvemonth, but should beware against temptation to deceive a friend.

"Children born today are ruled under signs that are read as powerful for constructive energy and foresight in planning."

Well, what is the significance of this? The significance of such paragraphs being printed in the midst of news about Wall Street, the Republican party, and April changes in railroad timetables? One thing it points to, that the human race clings inveterately to its childhood; that Horace may be skeptical about the "Babylonian numbers," that Savonarola may condemn astrology—yet that Kepler, in spite of his great scientific genius, will, nevertheless, cast a horoscope for Wallenstein; that Harvey and Descartes may overthrow the mystic "spiritus animales," only for Animism and Vitalism to arise equally mystical, in their turn to be dispelled by modern chemistry, by Darwin, Helmholtz and Haeckel; that Swift in the eighteenth century may kill

* This prediction followed the Titanic disaster very promptly.

star-gazing, only for it to revive vigorously in our morning newspapers. To our childhood do we cling, indeed—but for the true moral we shall not be ready until we have done some further traveling up and down the centuries. That palmistry (to cite another instance) was known in China 3000 years before Christ, and has survived several religions and several civilizations, and still goes marching along unchanged, while Edison and Marconi and Curie flash upon us their miraculous discoveries—this is something to be taken into our intellectual account.

Our shudderings and our mutterings are long-descended, and the quacks are almost the oldest family in the world. What the first incantation was we are not likely ever to know, but most of us are familiar with that one which is probably the latest: "There is no sin, sickness or death." Many patients have been bidden to repeat this over and over as part of the ritual of their treatment. It seems quite as sensible as a rune I used to chant once:—

Eeny, meeny, moaney, my,
Butter, leather, boaney, stry, etc.

In syllables almost identical the Celts once counted their sheep. The triangular word *Abacadabra* (which in Hebrew means "I bless the deed") was a respectable and established remedy for fever and ague, A.D. 212; but jargon was chattered over our ailments earlier than this. Cato the elder, that preëminent curmudgeon, who properly hated the Greeks for teaching soft vices to the Romans, and improperly hated doctors because they then all came from Greece—Cato used to practice a little surgery on his farm, about 200 B. C. When his laborers brought him their swollen joints, he would say, not

Double, double,
Toil and trouble,

but

Huat hanat
ista pista sista
damiato
damnaustra.

Whence did he derive this? Was it a little thing of his own? We must pause at this Cato for one moment; he is so like ourselves. He was a shrewd, hard-headed business man of Rome, who saw clearly that Carthage's looming commercial competition must be headed off by the destruction of that city itself; yet Cato quacked over swollen joints. I suspect he did not invent those syllables, but borrowed (or varied) something older, just as different children have different versions of Eeny, meeny, moaney, my. Listen to this:—

Shabrirli
beriri
riri
ri.

That is an ancient Hebrew incantation, and here is part of one from Babylon:—

Ki
risch-ti li-bi-ki
risch-ta la li-bi-ki
la li-bi
pisch.

Thus does the incantation, jargon, quackery come trickling down the ages to us: Risch-ti la li-bi-ki, Shabiri beriri, Huat Hanat, Abracadabra eeny, meeny, there is no sin, sickness or death, do we not detect family resemblances throughout? There's rhythm, alliteration and nonsense, the very things that sensuously impress credulity. When Cato quacked over his plowboy, the plowboy felt that something potent and above his comprehension was being set in motion for him, and his sore joint, if the swelling wasn't very serious, was doubtless helped by his state of mind. We have good ground to believe that the old word quack-salver (whereof the resemblance to quicksilver is purely accidental) means him who salves, who saves, who heals by jargon, by quackery. Without scientific confirmation, I can merely venture to hazard a guess that in all these incantations a primitive germ of "suggestion" is to be found. And when the doctor writes his prescription at our bedside, don't some of us suspect a special virtue in his hieroglyphs? And don't we half nebulously imagine that if he would bestir himself and employ *all* the knowledge which hides behind his impenetrable eye, he could work real special miracles in our behalf? The power to imbue us with this mystic confidence is what we term today a good bedside manner; it is a survival of white magic, and is essential to our welfare; he whose faith in doctors is decayed is ripe prey for charlatans.

It is tempting to run riot among the strange examples of this ingrained ancestral credulity which lies in us so deep, and crops out in such protean aspect, but I will tax your patience with only two cases more, and these from personal experience. In a New England State, since Colonial times, has lived a family of natural-born bonesetters. One of these unlicensed hereditary practitioners unquestionably cured Theodosia Burr of hip trouble when the surgeons of New York had failed. Today any jury of that State will take the word of an unlicensed bonesetter against the sworn testimony of an educated, licensed physician. (There is in this a seamy side of American democracy, but I will not open that door. The bone-setting hereditary gift is a fact just as authentic as is the "jumping Frenchman" of Canada.)

In the same State, and within the sound of the whistle of the express trains between New York and Boston, a family who were suffering from anemia dug up their recently buried sister and roasted her liver to stop her from "vampirism" them. Now, at the end of the nineteenth century, for that is when my anecdote occurred, the liver of the New England Yankee woman

was roasted because six or seven thousand years ago people believed that the liver was the seat of the soul. Only thus could the vampire be killed. On this liver we fly straight back from New England, through Britain, the Middle Ages, Rome, Greece, Egypt to Babylon, where we have to stop for lack of earlier records. In spite of the telephone, we resemble the mummies—the set fractures of whose bones, by the way, give proof of a clearly developed knowledge of surgery.

In the Yankee vampire, Solomon, visiting New England, would have recognized at once an old acquaintance—Lilith—although he might have to visit Borneo or Burma or Uganda, to see divination by the liver in actual practice. In our down-town streets he would very naturally mistake our banks and stock-exchanges for temples of the gods; but wherever he went, he would hum his old maxim, that there was nothing new under the sun. Much that is done by the Hudson and Mississippi they did by Tigris and Euphrates.

In attempting to discern the silhouette of the doctor against the various receding backgrounds of history until all outlines are merged in the mist of the primeval ages, two wholly contradictory thoughts arise; one wonders how the doctor, when once he had emerged as distinctly as he did in the person of Hippocrates, should not have gone on growing ever clearer and clearer, like a photograph developing on a plate, instead of presently becoming dimmer and more dim, until he grew virtually invisible for centuries. And on the other hand, one equally wonders how the doctor ever emerged at all. He was no money changer or lawyer or merchant. He was far different; he was merged with the multitudinous and ubiquitous quack—the quack self-deceived and the quack self-confessed; he was stirred into the same cup with priests, astrologers, patron divinities, magicians, witches, prophets. Superstition held him in her hand, and closed her hand over him. Let us greatly foreshorten as we review his evolution, and from it distil morals useful for ourselves and our children.

Of course we don't know when he began. Scholars don't know, but we may all boldly guess that he began pretty soon. Somebody must have been hurt in battle or in hunting, and discovered some neighbor particularly successful in giving him relief. This must have constantly happened ages before Ea, god of light and beneficence, healed the sick and raised the dead. There would the doctor have been, already quite emerged, quite on his own feet. But the sun, rain, lightning, thunder were too much for man's imagination. Many gods, good and bad, evidently encompassed man. Religion, therefore, controlled every least act of his life, and thus we find the priest at the root of every doctor's family tree. He was at the root of many other professions besides religion and medicine; he declared the law, regulated education; he swayed armies; he ruled trade and domestic life and ag-

riculture and migration; he was the first statesman, and his doctoring was as public an office as any of his other offices. With a proportion of truth much greater than when uttered by Louis the Fourteenth, the priest of archaic ages could have said, "L'état c'est moi." And by the time intellectual evolution had reached the stage of revealed religion, literature had appeared, and of this also the priest took control, and by this means, by the means of sacred writings, he ordered and presided over the community and became the central power of the state. The Pentateuch contains what is to us the most familiar example of these various revealed religions, and the thirteenth and fourteenth chapters of Leviticus give an admirable instance of the priest in medicine. They are a mixture of close, accurate observation on the one hand, and of incomprehensible rites on the other. "If the plague of leprosy be healed in the leper, then shall the priest command to take for him that is to be cleansed two birds alive and clean, and cedar wood, and scarlet and hyssop. And the priest shall command that one of the birds be killed in an earthen vessel over running water. And for the living bird, he shall take it, and the cedarwood and the scarlet and the hyssop, and shall dip them and the living bird in the blood of the bird that was killed over the running water. And he shall sprinkle upon him that is to be cleansed of the leprosy seven times, and shall pronounce him clean, and shall let the living bird loose into the open field." These symbolic and magical prescriptions follow upon an account of leprosy itself, containing directions about isolation and burning the patient's clothes, which are as rational today as when they were written. But from this we distil our first moral: In those ancient days the State, through the priest, regulated the practice of the healing art. The doctor's duty to the community came before his duty to the individual. That ancient relation between doctor and State will revive; is reviving.

It is from such therapeutics as Leviticus discloses (and innumerable parallels are to be found in other ancient literature, in the Vedic lore, in the Hermetic books) that we see physiology suffering a set-back—almost a strangulation—in its very cradle; a mystic, instead of a natural explanation of life gains headway; baneful, nay, frightful superstitions arise—such as a man's getting rid of his disease by transferring it to another. Naaman's leprosy clove to Gehazi by way of punishment; Death agreed to take the wife Alcestitis instead of the husband Admetos; the perpetuation of these fables can be seen almost daily in our criminal courts, for, though mysticism has at last let go of the doctor, it has not relaxed hold of the patient.

The significant, nay, the enormous fact for us to realize and remember is that charms, spells and rites in all these thousands of years have never advanced, never matured, while surgery and medicine, precisely in proportion as they

have shaken off the shackles of mysticism and dogma, have grown in their power to prevent and alleviate human suffering. Magic is stationary; magic hangs unchanged on a side offshoot of the great tree of evolution; it is science alone that we find in the main trunk of growth.

But, as I have said, the doctor's outline was very dim, long before and long after the date of Leviticus. He was encased in the priest, looked with the priest's eye, spoke with the priest's voice and continued to live in the nebulous clot of the supernatural that had been his birthplace. By the time we see him distinctly extricated from this, the nebulous clot has already been the parent of all varieties of "irregular" practitioners. Evidently these ancestral quacks, sorcerers, magicians, and so forth, were a class in ill repute, for we find very ancient laws forbidding people to have recourse to them. These laws were not at all based upon the idea of deception or sham, but on the belief that such people were in league with powers of evil instead of with the power of good which supported the priest or "regular" practitioner. It was a scandal to the pious when disease was for the first time roundly asserted to come not from the gods but from natural causes. The man who dared say such a thing was called an atheist; nor can we at this time quite realize the courage that such an assertion required. For during those early eras in India, or Assyria, or Egypt, or wherever, the gradual specialization of man had logically caused an equivalent specialization of gods, patron divinities multiplied, and I need only remind you that Thoth, Hermes, Apollo appear (with others) in connection with healing. But these greater personages were by no means all; the human body came to be parceled out among several dozen little gods, each with an exclusive territory, seldom bigger than the thumb joint. Whenever a man felt any pain, the divinity presiding over that particular spot was to be duly propitiated. From the cult of disease-making the belief naturally followed that illness was a devil inside the patient—and here we meet the origin of the nasty stuff our grandparents had to swallow in such quantities. In order to disgust and drive out the disease devil, large doses and monstrous compounds of dreadful taste were swallowed. We can note in this devil, too, the archaic symbol of the modern germ. Had we not been reminded by various illustrations that superstition is just as vigorous today as ever it was at any time, it would surprise us to find moving along abreast with the patron gods, a rational, concrete observation and practice. Although Tuesday and Wednesday, sacred to Mars and Mercury, were the prescribed days for blood letting, some elaborate and non-mystical surgery had come up among the Hindus, cupping was known, and, beside the setting of fractures, already mentioned, the Egyptians had specialized in ophthalmia. Nevertheless, Socrates said he owed a cock to Aesculapius; nevertheless, Aesculapius was

given a supernatural origin and education, and his temples were everywhere in the Grecian world, while Melampus began with the touching advantage of having two grateful serpents lick his ears. This taught him the language of birds and beasts.

Thus we get our impression of the early life of the Healing Art: a long, a very long infancy, a long, a very long childhood, full of fairy tales. It was thousands of years old when Babylon fell, yet it had not reached adolescence. In Homer, the doctor and the surgeon had become distinct, but rites and spells and sacrifices attended their ministrations. Nevertheless, the Trojan war (like many wars) caused an advance, both in practice and in observation, and so we reach a great milestone, 460 B.C.

Certain patches along the road of history blaze with light, while the stretches in between them look dull. One of these bright patches is a certain half-century in Greece, and the light from it to this day helps us to read many things. It would almost seem as if, flowing loosely and indefinitely about over our planet, were certain fertilizing forces of intellect, generally manifest in an average way, one century being usually as productive as another. But sometimes these forces seem to collect and glow as one for a while, emitting a lustrous and ineffable radiance. Thus, when the lamps of poetry, architecture, sculpture and philosophy were blazing in Greece as they have never simultaneously blazed since, it is natural that the lamp of medicine should also suddenly burn with a perfectly new light.

What makes Hippocrates illustrious along with his contemporaries Aeschylus and Plato and the rest, is not his intelligent molding into a system what the past—and especially the Pythagoreans—had indiscriminately handed to him—though this alone would have been a signal achievement. It took a fine mind to be the first to say:—

"Art is long, life is short, the occasion sudden. . . Experiment is indeterminate, generalization hazardous. . . Not only the doctor must do his part, but the patient as well, and the servants. . . For desperate cases desperate remedies. . . Whatever in connection with my professional practice. . . I see or hear. . . which ought not to be spoken of. . . I will not divulge." Thus speaks Hippocrates. It took a fine mind and a fine nature to utter such words. But it is not for this that Hippocrates is styled the father of medicine; it is because he dared to say that diseases came from natural causes, and not from the gods; Hippocrates walked out of the temple and sat down in his office. With that courageous act of deliberate self-conscious secularization the doctor's outline becomes at last distinct; he has emerged from Superstition and taken his place in Science.

Here is an epoch, indeed, in the psychic experience of mankind. It is as momentous as the discovery of Columbus, or the Reformation.

When Hippocrates dared to prove that epilepsy was not sent by the gods, the snapping of the bands of superstition made a sound that passed forward through ages, to be echoed back by Pasteur and Lister. Let it be repeated, we can hardly imagine the courage of such an act. Among the present company there may be those who, at one time or another, in upholding some principle, have run counter to the general convention of their friends, but theirs has been an adventure quite mild compared to that of Hippocrates. Is there a man here who has known what it is to stand alone and deny publicly by preaching and by practice some universally held political or religious belief? Attack the right of private property; many will be against you, but you will find fellow revolutionists. Declare that the story of the birth of Minerva is not a whit more mythological than what is asserted in the Nicene creed. . . you will shock some people, but by no means everybody. There is not in any American city at this moment one single social, political or religious belief that is shared and venerated by the community as a whole. Probably but once in the whole history of this country has a man known something similar to the experience of Hippocrates, and that was Garrison, when in 1830 he declared that slavery must be abolished. Yet even he was not as lonely as Hippocrates; for slavery had been already abolished in the rest of the civilized world, but all the world that Hippocrates knew believed that sickness was sent by the gods. Ah, to have uplifted your voice, and, amidst the general dissent, proclaimed a truth which goes on benefiting humanity 2400 years after you are dead—that is something to have done!

So this happened 2400 years ago. It opens the first chapter in the history of scientific medicine, and it brings our discussion again in sight of the sky-scraper. From the age of Pericles down along the centuries to ourselves, superstition and the doctor walk as separate beings, in spite of the long eclipse which overcast the mind of Europe. Before that huge and vast barbarian darkness set in, medicine and surgery were able to advance several steps, superstition, of course, keeping pace with them—even stimulated by competition with them. Moreover, Philosophy took Medicine by the hand and led her astray; Plato and Aristotle, by their theorizing, actually beclouded much of the good Hippocrates had done. Schools arose, and controversies about methods just as bitter as today, so that when Galen appeared about five centuries later he found medicine a house divided against itself, crumbling with all sorts of fancies and futilities, and it needed his great genius merely to rebuild, let alone to extend, the foundations. But Galen inherited what Hippocrates had never known, dissection. It is said by Celsus that the surgeons of Alexandria practised vivisection on condemned criminals, Alexandria arguing that a few malefactors could be thus utilized for the benefit of mankind at large. If this ever did

happen, humanity put a stop to it before long; and after humanity the church spoke, and not only vivisection but even dissection was for centuries forbidden or discredited.

Now while all this was going on in the rational department, the irrational was not idle. Amid the teeming harvest whereof Hippocrates was the earliest and splendid fruit, the ancient weeds took a new start. Astrology, which Greece transplanted from Babylon, where it flourished for public use, was by Greece converted to private use, and so passed on to Rome. Then, in transit anatomy became almost inextricably commingled with the planets, even at the very time when the human body was being rationally investigated at Alexandria 300 B. C. A custom of casting horoscopes, private and official, thence flourished uninterrupted for 1900 years, when (in the sixteenth century) astrology seriously affected trade. Furthermore, the temples of Aesculapius were not driven out of lucrative business because Hippocrates had renounced them and their works. We need only single out Alexander, the Paphlagonian. He conducted a particularly enterprising establishment, and during the plague, A.D. 166, his oracle issued a verse which was used as an amulet, and inscribed over doors. This Alexander bears a striking resemblance to some of our brothers who pass by the sky-scraper; he was a spiritual medium; he was a blackmailer, he and his will live and prosper as long as the human race continues upon this planet.

No wonder that such a man as Galen strove to lift medicine out of the stifling tangle he found it in; no wonder that Antoninus Pius passed laws regulating the practice of medicine. And here once again our moral recurs: Ancient medicine was controlled by the priest; with Antoninus the State lays its secular authority upon it, with ourselves, more and more, the State will take measures to supervise a class of men in whose hands lies the health of the community.

The vast European darkness fell upon the glory that was Greece, and the grandeur that was Rome. Through that long night the living spark of medicine did not quite expire. The Philosopher's Stone and the Grand Elixir kept it alive. In Italy, at Salerno, it glimmered quite steadily for centuries—until Napoleon. It wandered to Damascus and Bagdad; it inspired the Byzantine school. But mostly it smouldered beneath Sorecery, Palmistry, Monasticism—in sooth, beneath an asphyxiating mysticism; and beneath mysticism it was found in the seventeenth century, scarce brighter than Hippocrates and Galen had left it. One great, courageous man in the sixteenth century—Ambrose Paré—was not mystic, and braved the faculty, and was called a quack for bandaging amputated limbs instead of pouring boiling oil over them. We meet other great names—Paracelsus, for instance—but it was Wiseman and Harvey who really turned the spark to a flame. A spark it had been since 400 B. C., 2100 years; we know the flame it is become

in the last three centuries. We need not more than pronounce the names of Hunter, Jenner, Darwin, Lister, Pasteur; our story ends when medicine and surgery waked from their long sleep of superstition, and began again where Hippocrates and Galen had left off.

We have now taken a glance at the human family in a particular light, we have surveyed ourselves from sky-scraper to Babylon, that we might be reminded how little we have changed during our brief history. We have had to skip much; we have omitted the great renaissance of witchcraft following upon the Inquisition and the Scholiasts; we have described none of the outeries invariably raised against each important advance in Science—as against every other intelligent innovation. In one of our great cities, leading citizens bitterly opposed the introduction of illuminating gas for twenty years; in the same city, leading citizens undertook to prove theoretically that if anthracite coal were carried in a railroad car instead of in a canal boat, the coal would be reduced to dust by the vibration. The Governor of a great Southern State in recent years vetoed a bill providing for compulsory medical inspection of school children. May we not hope that the time is approaching when all schools and all colleges will be subject to such inspection, and people will speak of the former unenlightened prejudice against it, just as we speak of the prejudice against vaccination and chloroform? The Russians named the first child vaccinated among them Vaccinoff; a little girl, christened Anaesthesia, thus celebrated the fact that she was the first child born under the auspices of chloroform. Such events, great and little, and such instances, all through the length of history, we have perforce omitted—but had we been able to include them all, the whole testimony from the beginning until today would but show us what has been already shown—that superstition, credulity, prejudice, are indestructible. And how, indeed, can superstition ever disappear, while the universe remains a mystery? And when shall we understand the universe? Is there a person in this room, or in the world, who can explain why sugar tastes sweet and salt does not? Or how the perfume of the rose is wafted through the air? Some men can handle bees without being stung, and some can pick up scorpions and deadly snakes unscathed. It is not done by a trick; these are authentic facts, but even the men themselves do not know what personal quality it is that they use so strangely. We do not know why the grotto at Lourdes has undeniably been able to heal the wounds of certain patients deemed incurable by regular practitioners. What, then, is there that we wholly understand? Wherever and whenever we attempt to answer the questions Why? and How? we step off at once into the vast and featureless unknown. Therefore Superstition survives, no matter what Science may achieve; and we may call the Quack a constant by-product of that eternal surrounding mystery whence Science

from time to time draws a slender thread, a new clue, for the benefit of man.

What then, fellow patients, is the moral for us? Is not one moral, at any rate, that we should beware of our prejudices? Can we not imagine two Athenian ladies meeting on the day that Hippocrates made his great Declaration of Independence? Can we not fancy one lady walking up the fashionable street of Athens and meeting her friend in the fashionable Square of that classic town?

"Good afternoon, my dear friend! And who, O Penelope, is this profane upstart who would slander the immortal gods by declaring that they do not send us epilepsy?"

"I know not the fellow's name, O Parthenia! But surely he will be done to death for his great wickedness."

"Worse than wickedness, O Penelope! His shocking vulgarity."

And what, then, doctors, is the moral for you? Is it not, in one way, quite the same as it is for us—To live always with an open mind? No easy thing to do, by the way! The mystery of the hereditary natural bone-setter who was able to cure Theodosia Burr, the still greater mystery of the authentic cures at Lourdes—these and similar phenomena hold something that you may some day be able to formulate and control. During the sensation created in France by Mesmer, a committee of wise men was appointed to investigate and report upon the singular (though not wholly novel) pretensions which Mesmer had made. The wisest of them all, Benjamin Franklin, reported adversely as to the existence of the so-called mesmeric fluid, but he remained non-committal regarding the cures effected.

So much for an open mind—a passive duty. The doctor's active duty looms large. We have reminded ourselves that in the beginning of civilization he was combined in the same person with the statesman and the priest; we have seen him in the course of his evolution separate himself from the priest, and become secular. Then, in curious analogy to the archaic specialization of gods presiding over various portions of the human frame, the doctor in his turn has specialized, so that today we may say that he is divided into many fragments, one for the eyes, another for the ears and throat, and so on; yet, singularly enough, as our civilization grows increasingly complex, the doctor's path is leading him again towards a union or coöperation with the Church and the State. Once more, as of old, his duty to the community tends to come before his duty to the individual, because we are beginning to see the community's health as a unit.

Second, and only second, to a national ideal, is the nation's physical endurance and vitality and fertility. The strength of each generation's limbs, the cleanness of its blood, and the cleanness and soundness of those to whom it shall transmit life, this more and more must be the doctor's concern, must precede his consideration for the individual. We have learned to accept,

with diminishing protest, that yellow poster which marks our house when it harbors some dangerous communicable disease. To "free-born Americans" of fifty years ago, this would have been intolerable. But—man's inalienable right to life, liberty, and the pursuit of happiness, does not include the right to be infectious. We shall go further than the yellow poster. There are signs of it. Disease is not communicable only, it is also transmissible. In some parts of our country the law already prohibits certain classes of criminals from parenthood. But here we graze a thing called "eugenics." Now about eugenics there is at present a deal of overdone emotion and underdone reflection. Let us (if this is yet possible to the American people) restrain ourselves from dashing down foolish and hasty laws upon our Statute books. Such laws, when enforced, often work their precise reverse. If doctors and parents will drop the old-fashioned excess of reserve, and talk sense to boys and girls privately, public school-rooms need never be an arena for this delicate topic. Fewer asylums and hospitals, fewer untimely graves—this good end will not be best accomplished by bad means, by crude legislators and crass preachers. To denounce youth as vicious when youth has merely followed the impulse of adolescence, is futile, because youth will not believe this; other and juster reasons must be given, if youth is to listen and be controlled; and any young man, properly warned and properly informed, will not be merely willing but anxious to learn from his doctor before marriage if he is fit to be a husband and father.

From the shoulders of Hippocrates upon his descendants has fallen a mantle of great courage. Not the sailor, not the soldier, no man of any kind, has given his life so freely and with such serene gallantry as has the doctor. In his search to lessen human suffering he is dying daily, quietly, without sound of trumpets and drums. Inspired with physical and moral courage—not only to brave pestilence, but also, when need be, to face violent public opinion for the sake of a great cause, this is his hereditary duty, and his destiny, noble and exalted.

Original Articles.

OBSERVATIONS UPON TEN CASES OF DIVERTICULUM OF THE BLADDER.*

BY HUGH CABOT, M.D., BOSTON.

IN 1912 I presented before this Association some observations¹ upon three cases of diverticulum of the bladder and I desire now to add to

* Read before the American Association of Genito-Urinary Surgeons at Stockbridge, Mass., in May, 1914.

¹ See JOURNAL, Vol. clxxii, p. 300.

the evidence at that time put forward. The two most interesting questions in connection with these pouches are: (1) Their origin, whether congenital or acquired; and (2) their management by operation.

CLINICAL EVIDENCE BEARING UPON THE ORIGIN OF DIVERTICULA.

In the discussion in 1912 I found myself at variance with the views expressed by Dr. Chute, to the effect that these conditions were acquired rather than of congenital origin. The acquired type must obviously be due to obstruction in the urinary tract at some point below the bladder, and it behooves the advocates of the theory that they are acquired to produce evidence of obstruction as it also behooves those who hold the view that they are congenital to show that these patients are not guilty of obstruction. Upon this question I have the following evidence to submit:—

CASE 1. J. H. G., 38 years. March, 1911. Symptoms began at age of 25. Autopsy showed bilateral diverticula with dilatation of both ureters, obstructive thinning of kidney tissue. Pylonephritis. There was no demonstrable obstruction in the urinary tract.

CASE 2. M. G., 30 years. May, 1912. Symptoms six months' duration. One diverticulum just above left ureteral orifice. Removed by operation. No urethral or prostatic obstruction. Operative recovery. Patient lost sight of.

CASE 3. L. L., 28 years. October, 1909. Known to have had cloudy urine without obvious cause for two years. One diverticulum just above right ureteral orifice. Removed by operation. No urethral or prostatic obstruction. Patient well. Clear urine 1913.

CASE 4. J. W., 29 years. June, 1913. Symptoms a year and a half. One diverticulum posterior wall of the bladder. Removed by operation. No urethral or prostatic obstruction. Good operative recovery. Patient lost sight of.

CASE 5. A. G., 59 years. August, 1913. Symptoms one year. Prostate moderately enlarged by adenomatous growth. One diverticulum just above orifice of right ureter. Operative removal of diverticulum and prostate. Slow but satisfactory convalescence. Urethral obstruction due to prostate.

CASE 6. W. R. B., 46 years. March, 1914. Cloudy urine of some years' duration. No other symptoms. Operative removal of left-sided diverticulum, into which the ureter opened. No urethral or prostatic obstruction. Patient still under observation.

CASE 7. G. B. C., 23 years. January, 1912. Symptoms two years' duration. Cystoscopy shows bilateral diverticula in neighborhood of ureteral orifices. Kidneys too far gone to permit operation. No urethral or prostatic obstruction.

CASE 8. C. E. K., 50 years. May, 1913. Symptoms eight years. Two diverticula on right side, one above, one below ureteral orifice. Operative removal. No urethral or prostatic obstruction. Operative recovery.

CASE 9. E. F. P., 50 years. March, 1914. Symptoms ten years. Seven years ago perineal prostatectomy. No relief of symptoms. Ten ounce residual continued. Two right-sided diverticula above ureteral orifice. Operative removal. Operative recovery. No urethral or prostatic obstruction. Empties bladder completely.

CASE 10. A. N. B., 72 years. July, 1913. Symptoms ten years. Prostate much enlarged. Right-sided diverticulum some distance above ureteral orifice. Operative removal of prostate and diverticulum. Now empties bladder completely. Urine clear. Urethral obstruction due to prostate.

Taking these ten cases together they show an average age for the onset of symptoms of 37 years, and though it is probably fair to assume that the condition must have existed for some time before the onset of symptoms, let us assume that it did not. Only two of them showed clinical evidence of obstruction, Cases 5 and 10. Moreover, obstructive lesions of the prostate are, to say the least, not common at the age of 37, and none of these patients had any demonstrable stricture of the urethra. For the other eight cases it seems to me logically to follow that the advocates of the theory of acquisition must assume that the cause lay in fetal life and has disappeared beyond the possibility of clinical demonstration. This is, I believe, the theory of Englisch. It must, however, be admitted that a condition giving rise to sufficient obstruction to force outward all the coats of the urinary bladder, and then disappear, leaving no trace behind it, belongs in the category of the miraculous. Upon the evidence submitted, and which I have been able to collect from other sources, it seems to me far more probable that these sacculations are of congenital origin, that they may, and do, exist for years without causing symptoms which, when they appear, depend upon the advent of infection. Entire quiescence must not, however, be taken to mean that these conditions are harmless since, as is well recognized, they occur most commonly in the neighborhood of the ureteral orifices. By their presence and by their extreme likelihood of producing pressure upon the ureter, they sooner or later produce ureteral dilatation, hydronephrosis and extensive destruction of the kidney. When thus situated they are therefore always a serious menace to renal integrity and not uncommonly destroy the patient. Those cases which have been discovered early and removed have been followed by complete cure.

Operative Management. It goes, I believe, without saying, that when a diverticulum of the bladder is discovered the indications for its operative removal are clear if the condition of the patient is such as to make recovery within the

bounds of probability. Two conditions in particular, apart from mere technical difficulties, will influence the result. First, the condition of the kidneys, and second, the amount of pericystitis and peri-diverticulitis, which result from long-standing infection. In Cases 1 and 7 the extent of the kidney damage was such as to constitute a positive contra-indication. Case 1 came to autopsy and Case 7 was clearly not likely to live long. A lesser degree of the same condition existed in all of the other cases except Case 3 and Case 10 and must therefore generally be reckoned with. The damage to the kidneys resulting from obstruction is not confined, in the case of unilateral diverticulum, to one side. With diverticulum there has in our cases been constantly observed very marked hypertrophy of the bladder wall, which is sufficient to increase the pressure around the ureteral orifice on the sound side and thereby increase the work and lead to dilatation of the ureter. This bilateral dilatation was demonstrated at operation in Cases 4 and 8, both of which were unilateral cases. Upon precisely what mechanism this hypertrophy depends is not to me clear, but its extensiveness I believe to be beyond question and its importance as a menace to the integrity of the kidney is certainly great. It therefore becomes extremely important to study the kidney function of these patients carefully before undertaking operation, though successful results may be obtained in patients with extremely low functions, as shown by Case 8, whose function was at no time above 10% by phthalein and whose average function was about 5%. Case 5 had a function of not over 15%, and Case 4, with a posterior wall diverticulum, a function of 25%.

Peri-Cystitis and Peri-Diverticulitis. The inflammatory reaction around these sacs is in some cases very great and has seemed to depend directly upon the duration and severity of the cystitis and diverticulitis. It not only greatly increases the difficulties of operative removal, which in all conscience are great enough in many cases, but when of severe grade and widespread, seriously compromises the future ability of the bladder to take up its function. This is aptly illustrated by Case 8, in whom the removal of the diverticula, which were extensive though unilateral, did not result in return of the contractility of the bladder. He has, during the year which has elapsed since operation, been free from his acute attacks of pyelonephritis, but his bladder still contains much residual and he is largely dependent upon a catheter. It therefore follows that the earlier these pouches are discovered and removed the greater the probability of a complete cure, such as resulted in Case 3.

Operative Technic. I believe it to be now fully demonstrated that no operation short of excision of the diverticulum can be expected to cure. Case 9 had his prostate removed years ago with great completeness but without benefit to his symptoms, as he continued to have a large

and increasing residual. Once these pouches have lost their contractility and given rise to residual urine, that contractility cannot be restored by removal of an obstruction, should such exist. The lesser operations of enlargement of the orifice of the diverticulum seem to me total failures. In one of our cases, Case 8, this was tried three years before my operation, without benefit and without even stopping the progress of the symptoms.

I shall, therefore, confine this discussion to the technic of excision of the diverticulum. In all cases, no matter where situated, the operation will be facilitated by the opening of the bladder, which not only enables the surgeon to identify accurately the position of the sacs but facilitates the dissection by what might be called the bimanual method, one finger in the bladder and the other hand upon the outside. From this point on, however, the operative attack should vary according to the position of the pouch.

1. *Diverticula on the Posterior or Lateral Wall, Not in Relation to the Ureteral Orifice.*

In these cases the position of the ureter and the consequent possibility of wounding it need not be considered, and the following technic has served us well: The bladder having been opened and the finger introduced into the pouch, the bladder wall is incised freely down to the neck of the pouch, which is then circumscribed, a clamp applied to the pouch and the rest of the dissection rapidly finished. The incision in the bladder wall, though long, has not seemed to me objectionable, and it greatly facilitates speed and avoids unnecessary trauma to the surrounding tissues.

2. *Diverticula Situated in the Neighborhood of the Ureteral Orifices.*

Under these circumstances the avoidance of unnecessary damage to the ureter is of prime importance and its identification, unless aided by artificial means, is a matter of no small difficulty and considerably lengthens the time of operation. We have believed it best to isolate the ureter on one or both sides, according as the pouch was unilateral or bilateral, in the neighborhood of the iliac vessels. The ureter is then clamped lightly with a Crile clamp to prevent wound contamination by the urine, opened and a good sized gum-elastic bougie passed to the bladder and left in place. This maneuver renders the identification of the ureter easy at all times and removes the danger of its accidental incision or division. The difficulty next met with is the separation of the pouch from the surrounding tissues, to which it is generally firmly welded. It has generally seemed unwise to split the bladder wall down to the orifice, as is done in the posterior or high lateral wall cases, and particularly is this undesirable in bilateral diverticula. The separation of the sac is in some cases much facilitated by packing it with gauze, thus giving a firm mass on which to dissect and rendering the identification of the tissue easy. Our greatest difficulty has lain in the

fact that these pouches are so surrounded by scar tissue and glued to everything in the neighborhood that it is by no means easy to distinguish them from other important structures, as for instance, the rectum. After the pouch has been thoroughly freed (it generally must be done with the scissors and cannot be freed by blunt dissection) it may be drawn upwards by means of a clamp and the neck of the sac freely divided. The wound thus left can generally be closed without difficulty, though in the cases situated below the ureteral orifice the adherence of the bladder wall to surrounding structures sometimes makes closure without tension difficult.

The hardest problem lies in those cases in which the orifice of the ureter has been drawn upward into the diverticulum. For these, Young some years ago suggested a technic which involved the leaving of a flap of bladder wall around the ureteral orifice, the rest of the sac having been excised. This flap was to be sutured into the defect in the bladder wall. This technic is ideal and I am glad to be able to report that I have recently carried it out without serious technical difficulties and I believe with a good result. This flap should have its base toward the median line, not only because of the probably better blood supply, but because in the majority of cases these sacs lie above, below or to the outer side, and much more rarely to the inner side of the ureter. From these anatomical peculiarities it follows that the ureter naturally tends to follow the inner side of the sac. Where this technic is to be carried out it is essential to have a guide in the ureter, but, as I have already pointed out, I believe this to be desirable in any case. Where the conditions are such that the technic of Young is impracticable and the ureter yet enters into the diverticulum, it must of course, be divided and reimplanted into the bladder wall at a point which can be reached wholly without tension. We have come to believe, largely by experience in other conditions, particularly cancer of the bladder, that the most successful implantations of the ureter are accomplished by leaving a half inch or more of the end of the ureter projecting into the bladder. The intent of this is to enable the ureter to accommodate itself to the altering conditions of the bladder and finally come to rest without tension. We have not believed that it was desirable to attach the ureter to the bladder wall by many sutures and have rarely used more than two for this purpose.

Drainage of the Ureter. The only further question is as to the desirability of providing drainage for these dilated and necessarily more or less abused ureters. In two or three cases we have placed a good-sized soft rubber catheter in the ureter, extending upward nearly to the renal pelvis, and have brought this catheter out through the suprapubic wound. The smooth convalescence of these patients suggests that this may be a desirable maneuver, and in a considerable number of cases in which constant drain-

age of the ureter has been employed for other reasons, no undesirable results have been seen. This I believe to be better technic than to drain the ureter through the incision made for the insertion of the guide bougie, and this incision we have always closed tightly with two layers, a technic which the dilatation of the ureter will always permit.

In conclusion I desire only to emphasize what seem to me the important points of the operative treatment of these cases: Free bladder incisions carried down to the orifice of the sac in the more accessible cases. The opening of the ureter and the placing of a guide bougie in all cases where the diverticulum is in the neighborhood of a ureteral orifice, and finally, the constant drainage of the ureter for some days in those cases in which resection has been necessary or the flap operation of Young has been possible.

SPLENIC ANEMIA WITH REPORT OF A CASE.

By P. E. TRUESDALE, M.D., FALL RIVER, MASS.

D. H., female, aged 21. American born. Good family history. Admitted to the Highland Hospital, January 11, 1912. Referred by Dr. W. T. Learned. She had "anemia" at seven years, otherwise no illness of importance. For five years she had indigestion, frequently demanding enforced rest and the exercise of special care in her diet. Attacks of hematemesis occurred at least as often as once a year. Stools were always "tarry before an attack." Epigastric pain during the second attack was severe and tenderness across the upper abdomen subsided only after many days.

Catamenia began at 16. Though irregular for several years it has been regular during the past year. Accompanying discomforts have not been marked. About November 20, 1911, she noticed that her stools were tarry. A few days later she vomited blood. Hemorrhages continued for about five days and she remained in bed two weeks. During this attack there was acute pain in the epigastrium with local tenderness that was quite marked. Her best weight was 138 pounds in November, 1911. When this attack subsided she was hungry between meals, but had no pain.

Physical Examination. Well developed and nourished girl, perceptibly anemic. Throat was negative. Heart of normal size and position with sounds regular and of fair quality. Over the precordia there was a loud blowing systolic murmur, heard best at the base and along the left border of the sternum. Palpation of the abdomen revealed an enlargement of the spleen, the lower margin of which was about half way between the costal margin and the umbilicus.

Examination of test meal showed HCl-10. Total acidity=30. No bacteria. No blood or pus cells.

The blood examination was as follows:

Jan. 12, 1912.

Red cells	2,400,000
White cells	3,800

Hemoglobin	30%
Color index .....	.62

Smears: No normoblasts; no megaloblasts. The red cells show variation in size, but not to a marked degree.

Jan. 16, 1912.

White cells	3,000
Differential count of 100 white cells	
Polynuclears	78%
Lymphocytes	14%
Myelocytes	4%
Eosinophiles	4%

Jan. 27, 1912.

Red cells	3,800,000
White cells	2,200
Hemoglobin	45%

On January 31, 1912, laparotomy was done with a view to splenectomy. Dense adhesions from the spleen to the parietal peritoneum were encountered. Upon separating these adhesions there was persistent hemorrhage of a degree which soon made itself apparent in the condition of the patient. The spleen was, therefore, not removed. The peritoneal covering of the spleen was divided in several places and the omentum was anchored high, with a view to establishing a collateral circulation. The abdomen was then closed. There was a good recovery following this operation and the general condition of the patient continued fairly satisfactorily until November, 1912, when she had another attack of hematemesis.

Examination of blood, April 21, 1913, was as follows:

Red cells	4,800,000
White cells	4,000
Hemoglobin	80%

She entered the hospital again on April 22, 1913. Splenectomy was done. The collateral circulation, which had resulted from an interposition of the omentum, was essentially with the vessels of the abdominal wall. Smart hemorrhage took place from these enlarged omental veins, which, however, were accessible and quickly controlled. There was no excess of free fluid in the peritoneal cavity. Although the spleen was a good fraction larger than it was when seen before, its delivery appeared to be less prohibitive. The liver was more grayish, but its surface was smooth and its consistency apparently normal. The spleen was "turned turtle," as described by Warren,¹ and the large vessels at its hilum were ligated. The operation was completed with the patient in fair condition. Convalescence was slow, but was marked by a progressive improvement in the blood picture, and in the general health of the patient. Now, eighteen months after operation she has passed her probationary period in a training school for nurses connected with the hospital of a neighboring city.

Blood examinations at the date of discharge from the hospital and subsequently were as follows:

May 4, 1913.

White cells	10,000
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May 13, 1913.

White cells	15,000
Red cells	4,800,000
Hemoglobin	70%

May 28, 1913.

White cells	10,000
Red cells	4,000,000
Hemoglobin	80%

January 1, 1915.

White cells	12,000
Red cells	5,600,000
Hemoglobin	85%

Pathological Report. Specimen consists of a spleen weighing 288,000 grams. It measures 21 x 13 x 7 cm. At the lower pole there is a patch of calcareous deposit, 7 x 4 x 5 cm.

Microscopical Examinations. Sections of the specimen show the increase in size to be due to an overgrowth of the connective tissue of the organ. There is no hyperplasia of the lymphoid tissue. Some sections are densely peppered with a black pigment (iron?).

Diagnosis. Chronic splenitis

DR. A. C. MACRAE.

This case is recorded on account of its clinical analogy to gastric ulcer. The patient had a persistent disturbance of digestion, hunger between meals, intermittent attacks of hematemesis and epigastric tenderness. During one attack she was seen by Dr. W. T. Learned and Dr. E. F. Curry, whose examination revealed an elevation of temperature and pulse, associated with a distention and marked tenderness over the upper abdomen. The cause of this picture, by no means inconsistent with a perforated gastric ulcer spontaneously sealed, was explained by the presence on the upper surface of the spleen of a large area that had become necrotic. Later, upon finding an enlargement of the spleen, a blood examination was made and the diagnosis established. Thus is emphasized the indispensability of a blood picture in a case in which the spleen may be suspected of playing a part.

Splenic anemia occurs in young adults as a rule. It begins insidiously and at first progresses slowly. The first indication may be hematemesis, epistaxis, melaena, slight or so severe as to be almost fatal. Senator² states that the blood examination reveals a fairly uniform condition of things. There is a diminution in the red blood cells. There is a low percentage of hemoglobin, and a leucopenia. In the later stages of the disease ascites appears, preceded or not by cirrhosis of the liver. It is this association of enlarged spleen, ascites, and cirrhosis of the liver to which Banti³ has drawn special attention. He pointed out that in cases of this association the enlargement of the spleen, sometimes at least, was the precursor of the other two conditions and probably was the original focus.

D'Espine⁴ believes that the beginning of Banti's disease in adults dates from early child-

hood in many cases. He reports two cases in infants with the autopsy findings and tabulates the details of sixteen other cases in children which he has compiled from the literature. In eight cases the symptoms were merely enlargement of the spleen and anemia,—the first stage; in seven cases there were in addition hemorrhages, especially from the stomach and intestines, urobilinuria, slight jaundice and ascites. D'Espine inoculated the spleen tissue into animals with negative results, confirming the belief that the disease is not of infectious origin.

L. B. Wilson,⁵ in a study of eighteen cases of splenic anemia at the Mayo Clinic, writes on the pathology. Thirteen spleens examined showed a chronic diffuse process. In each spleen there was hyperplasia of one or more of the constituent elements. He further states that, while primary splenomegaly may begin as an overgrowth of the lymphoid tissue or of the endothelium, in the ordinary course of events a secondary overgrowth of the stroma of the glands will appear later, accompanied by a degeneration of the lymphoid or endothelial elements; that the largest spleens are those in which the lymphoid or endothelial hyperplasia is greatest. Wilson concludes by observing that the histological picture from cases of primary splenic anemia seems always to be in complete harmony with the hypothesis of the presence of a slowly acting local toxin.

Splenic anemia is now claimed by many authors to have found its place among curable diseases. Present interest appears to be centered around an obscure etiology and the end results reported after splenectomy. Reports of splenectomy for this affection are no longer rare in literature, yet few were to be found published prior to the last decade. The disease was not regarded a clinical entity and the mortality from surgical measures was high, 28%, for example, in a series of 32 cases reported by Armstrong.⁶ D'Espine⁴ reported eight cases in which splenectomy was done, with recovery of all but one of the children. Among the early successful splenectomies for splenic anemia was a case reported by Dr. J. Collins Warren.⁴ The patient was a male, aged 26 years, who complained essentially of distress after eating, occasional vomiting and a troublesome diarrhea. The diagnosis was made from the blood picture and the presence of an enlarged spleen. The operation was complicated by considerable hemorrhage, which was effectively controlled by turning the spleen over in a downward direction, thereby delivering the large vessels of the hilum of the spleen well into the abdominal incision.

Inasmuch as this case was among the first splenectomies for splenic anemia, the details of his tory leading up to his death form an interesting report. With the assistance of Dr. Warren of Boston and Dr. Torrey of Beverly, he was traced to Greensboro, N. C. By the courtesy of Dr. John Wesley Long, who attended him there, the following report is available.

J. M. entered St. Leo's Hospital, Greensboro, N.C., December 21, 1912. He had not worked for two months on account of nausea, spitting and vomiting of dark fluid. He denied having indigestion or abdominal pain. He stated that he was otherwise as well as usual though not as strong. On the morning of December 20, 1912, while in his berth on the train, he was seized with vomiting and was found on the floor of the sleeper in an unconscious condition, having vomited much bloody fluid. Soon after his admission to St. Leo's Hospital he had another severe spell of vomiting dark bloody fluid. When seen by Dr. Long on the following morning the patient was conscious, much prostrated, pale and inclined to sleep. The pulse was rapid and weak. Attacks of hematemesis continued to recur. The blood picture was as follows:

Red corpuscles	1,936,000
Leucocytes	16,000
Hemoglobin	40%

The patient was losing rapidly and after a consultation it was deemed advisable to operate. The following note was made at the time of operation. The stomach was opened through a 3-inch incision, near the pylorus. The stomach contained bile-stained bloody fluid. No ulcer or growth was found. The pylorus was patulous, and the duodenum dilated but contained no ulcer as far as explored by the finger and the eye. The duodenum and jejunum appeared to contain many blood clots. The under surface of the liver, especially about the bile ducts, and also the left lobe of the liver were hard and nodular, not quite the woody hardness found in malignancy. A small section was removed from the liver for examination. Following the operation the patient had no nausea or vomiting but during the afternoon had a copious bowel movement consisting largely of blood clots, soon after which he succumbed. The excised piece of liver was sent to Dr. W. T. Whitney, curator of the Warren Anatomical Museum, who reported that it was undoubtedly cirrhosis.

Klemperer and Mutsem⁷ report a case of Banti's disease cured by splenectomy. Urbino⁸ reports nine splenectomies for anemia, from Nucci's clinic with three deaths. W. J. Mayo⁹ reports eighteen splenectomies for splenic anemia with two operative deaths and twelve that are well twelve months to seven years after operation.

In conclusion one may reiterate the importance of a blood examination in conjunction with other evidence in order to differentiate splenic anemia from a type of gastric ulcer occasionally present in young adults. And that a patient restored to health for many years by splenectomy may die from a probable continuation of the same process of intoxication.

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THE STUDY OF DISTURBANCES OF THE STOMACH.

By H. F. HEWES, M.D., BOSTON.

[From the Clinic of the Massachusetts General Hospital.]

(Continued from page 341.)

The record so far gives us a diagnosis of chronic gastritis proven by the tube finding. This condition may exist by itself or be an associate of cancer. The absence of blood here was perhaps in favor of a simple gastritis as against cancer, but cancer gastritis does not always show blood. The history of alcoholism gave a sufficient explanation of the gastritis. An x-ray examination was made as a further possible means of investigating the possibility of cancer. The x-ray finding was negative. Of course a negative x-ray finding does not rule out cancer, but after exhausting all methods and finding evidence of gastritis only, we are justified in a diagnosis of simple gastritis.

This same result is true in cases where the result of tube examination and x-ray examination are both negative, whatever the character of the history in cases of nervous dyspepsia, and debility, or in cases where the tube finding shows simple hypersecretion or hyperacidity with negative x-ray findings. Some of these cases may be conditions of organic disease but all that we can do is to exhaust our methods of study and report them as nerve or functional conditions according to the finding. In this case, the tube finding was the important factor in diagnosis.

This series of cases illustrates the method of procedure employed in stomach work. Diagnosis is made, as you see, sometimes on the evidence of one finding, but as a rule by the study of the combined evidence of the findings by all methods of study, the history record, tube examination, and x-ray examination. A very important factor is the judgment of the physician in interpreting the evidence of the combined clinical picture. A physician may be expert in tube examination or in x-ray examination, but this is not enough. Most of all he must be a man of experience in the interpretation of combined clinical pictures.

The meaning of special findings, however definite, varies greatly according to the other factors of the case. Thus a definite x-ray finding has one meaning when combined with one kind of history or one kind of tube finding, and another meaning when combined with a different record in this respect.

This point is illustrated by the following records:

CASE 10. M., age 20. For eight years, probably more he thinks, he has had spells of dyspepsia, consisting of distress in lower part of epigastrium, coming on two hours or more after meals. The symptom comes three times a day and is relieved by eat-

ing. Has 2-4 spells a year, lasting until he consults a doctor, then freedom for about two months, then another spell. No vomiting, some gas. The principal thing is a gnawing distress in belly. Is otherwise a well boy.

Examination: Hb., 100%. Physical examination negative.

Fasting contents, 20 c.c. of clear fluid containing a few cells, no food, no blood. Feces negative.

X-ray: Stomach outline normal, good sphincter, but irregularity of D-cap. Marked deep vigorous peristalsis in stomach above pylorus. No 6-hour residue.

Diagnosis: History suggests a duodenal ulcer of long duration. X-ray suggests duodenal ulcer. Operation: Small ulcer of anterior wall of duodenum with scar tissue.

CASE 11. E. Z., age 22, Aug. 5, 1914. For ten years at least has had trouble with his stomach, he calls it sour stomach. He will have 2-3 days of symptoms, then freedom for perhaps a week. Mostly the symptoms in the spells consist of distress soon after eating, which may last hours. There is gas and sometimes vomiting. The location of pain is just below the navel, on the whole to the right,—it is not really pain, but distress and a sour feeling in the mouth, with raising of acid fluid. For a period of two years vomited often, every 2-3 days, after food. No vomiting now. Trouble may keep him from work in spells. Bowels always constipated.

Examination: Physical examination negative. Fasting contents, 20 c.c. of clear fluid with abnormal cellular sediment but no food. Free HCl present. Test meal: Free HCl, 0.15%. X-ray record: Constant irregularity of duodenal cap. Outline of stomach normal, sphincter normal. Stomach empties at the start more quickly than normal, yet some 6-hour residue. Peristalsis above pylorus normal.

Diagnosis: History suggests some longstanding cause of dyspepsia, but the type of symptomatology is not typical of ulcer, though possible as an associate of this condition, since many ulcer cases do not have typical symptomatology. X-ray finding suggests duodenal ulcer, in the irregularity of the duodenal cap area by fluoroscope and plate, similar to that seen in the patient just reported who was operated upon the day before this patient and showed duodenal ulcer.

Operation: No ulcer or abnormality of stomach or duodenum formed. Chronic appendix with mass of adhesion about it. Appendix removed and diagnosis verified.

Here are two cases with a similar x-ray finding of a significant character in the present state of knowledge of x-ray interpretation. In the case with the ulcer, the history record was typical also, and I had no hesitation in making a positive diagnosis. In the second case the history was not typical and I did not make a positive diagnosis, but thought the x-ray finding sufficiently definite to justify exploration, especially with the long history of disturbance. There is one more point brought out by a comparison of these two cases. The x-ray expert made a positive diagnosis of ulcer in both cases but he pointed out a discrepancy in the second record as contrasted with the first which makes

the record less typical as regards ulcer than the first. In the first case in addition to the constant irregularity of the duodenal cap there was abnormally deep and vigorous peristalsis of the stomach. In the second there was the same irregularity of the cap but the peristalsis of the stomach was normal. On such points, a difference in associated symptoms with similar findings by x-ray, and a slight variation in these x-ray findings in the two cases, may a difference in diagnosis hang.

CASE 12. R. T., age 28. May 12, 1912, the patient was operated on for appendicitis. The attack as far as could be determined was an acute one and some fluid was found in the peritoneal cavity. Six months after the operation the patient began to have symptoms of stomach distress, which have continued since and increased in severity. At the present time, Sept. 1, 1914, the symptoms are as follows: Upon rising the patient is all right and eats a good breakfast. About one hour after breakfast a gnawing feeling comes in his stomach and he begins to regurgitate sour stuff, which he spits out. The noon meal relieves the symptoms. One to two hours later they begin again—to be again relieved by the evening meal, returning about 9 p.m. No vomiting. Some loss of weight. The trouble is always with him.

Tube examination: Fasting contents, 20 c.c. of clear fluid. No food, no blood, free HCl present. Test meal contents: Free HCl, 0.19%; high acidity. Feces examination negative. X-ray examination: Marked irregularity of pyloric sphincter and duodenal cap. Peristalsis above abnormally deep and vigorous. Operation showed firm bands of adhesion running from the duodenum to the gall bladder and liver. Many adhesions about gall-bladder and about cecum and ascending colon at hepatic flexure. Gall bladder normal. No evidence of ulcer of the stomach or duodenum.

If we compare the record of this case with that in No. 10 which proved to be a case of duodenal ulcer, we find that the two records are similar in all respects, the character of the symptoms, the tube finding and the x-ray finding. Even the minute details of the x-ray finding are similar. In fact the x-ray expert made a positive diagnosis of duodenal ulcer in Case 12 as well as in Case 10. The only difference in the two cases lies in the record of appendicitis and operation preceding the onset of symptoms in the latter case. This one point of the record suggested that adhesions formed at the time of the appendicitis and attached to the duodenum might be a pathological process behind the symptoms rather than ulcer. In fact this was the diagnosis which was made before operation in spite of the x-ray expert's diagnosis of ulcer.

Adhesions are an undoubted cause of stomach symptoms in many cases. As a rule they do not give as typical a picture of duodenal ulcer in history and x-ray findings as in this case, but this case and many other similar ones that I have seen prove that they may do so. So where there is reason from the earlier record of the

case, to believe in the presence of adhesions, as in this case, I always make an alternative diagnosis of ulcer or adhesions, or cancer or adhesions, whatever the x-ray sign, unless the tube findings prove definitely cancer or ulcer.

Here is another case illustrating this same point, viz:

1. The capacity of adhesions to give stomach symptoms. 2. To give x-ray findings which cannot be distinguished from the findings seen in cancer or ulcer of the stomach. 3. As compared with the cases already reported, the different meaning of definite x-ray findings when associated with one set of clinical factors, from that seen with the same finding associated with another set of clinical factors.

CASE 13. M. S., age 60. Two years ago the patient was taken with a sharp pain in the epigastrium to the right, going to the shoulder blade. Pain lasted 4-5 hours. Patient was then well, with no symptoms of dyspepsia for six months, when another attack of pain in the stomach and right side occurred. The severe pain lasted most of one day, and some pain continued for three weeks. Was laid up in bed. No vomiting. Then relief until five months ago, when pain again returned. This pain has been present ever since, not constantly, but a part of every day. Some gas. Bowels constipated. The patient has developed a brown color. The distribution is not that of Addison's disease. No real icterus.

Examination: Hemoglobin, 70%. Physical examination negative. Fasting contents: 10 c.c., no food, no blood, no excess of cells. Free HCl present. Test meal: Free HCl, 0.07%.

X-ray examination: Failure of peristalsis over lower part of curvature and antrum. An irregular shadow in this region. Some 6-hour residue of bismuth. Sphincter and cap normal. Diagnosis: History suggests gall stones. X-Ray record, carcinoma of the stomach. Tube finding against cancer of the stomach advanced sufficiently to give the x-ray picture obtained, if this picture represented cancer.

Operation showed gall stones, and firm adhesions from gall bladder to curvature of stomach and duodenum. Here we had an x-ray finding suggesting malignant disease of the stomach or at least some lesion of the stomach wall, but the distortion of the stomach was due to adhesions.

This case, like the others, shows how much diagnosis may be a matter of the evidence of the combined findings of the case, rather than of any one single finding however positive.

From the practical point of view in such cases as these, doubt as to the exact diagnosis, or error in this, is not of great consequence, since all the cases had an organic lesion, for which operation was the proper treatment. All that we needed to diagnose was some organic pathological process affecting the stomach, demanding operative treatment, ulcer, or cancer, or adhesions. The cases where we cannot afford to make such positive diagnosis incorrectly are those where the stomach condition, giving the

positive signs as the x-ray signs, is a purely functional process or the result of reflex disturbance of the stomach from general disease, or from disease located elsewhere than in the stomach or stomach region. A case of gall stones can be operated upon through the same opening made for stomach exploration, but a case of chronic appendix (Case 2) or of intestinal adhesion, or a renal calculus cannot always, and in such cases the error is of some account, even if real operative work is needed after all, and the functional conditions, nerve conditions, heart conditions, tubercular conditions, syphilitic conditions, ptotic conditions, giving stomach symptoms or signs, should not be opened at all.

Here is another case illustrating this same point of the dependence of diagnosis upon combined findings rather than one single finding.

CASE 14. R. H., age 42. For 2½ years the patient has suffered much of the time from distress soon after food and bloating with gas. Eight months ago she began to vomit and has vomited every day since, sometimes three times a day. Vomiting comes after eating, and according to the patient contains food of previous days. No actual pain. She has never vomited blood. The patient has lost about 10 lbs. in 8 months. She is evidently of neurotic type.

Examination: Hemoglobin, 80%. Examination otherwise negative.

Tube examination: No fasting contents obtained. Test meal contents. Free HCl, 0.18%.

X-Ray examination: Opposite lesser curvature an incisura. No other irregularity in stomach outline. Peristalsis vigorous. Feces showed slight blood test. The x-ray finding here was suggestive of possible ulcer but not definitely diagnostic as the peristaltic variation from normal was slight and such as may be seen in functional disturbance or with adhesions. Further tube examination and feces examination was ordered. The second tube examination showed: Fasting contents 15 c. c. of reddish fluid giving a strong blood test, no food, free HCl present. Numerous epithelial cells in sediment. Test meal contents taken a day later gave a positive blood test. Feces gave a positive blood test. A third tube examination gave a positive blood finding in the fasting contents. Feces again gave a blood test. A second x-ray examination gave a normal finding. The incisura found before could not be seen.

With the repeated blood findings, however, it was decided to explore for ulcer. Operation showed a chronic ulcer of lesser curvature. In this case the x-ray finding was suggestive of ulcer on one occasion but failed to give evidence on another. It was not conclusive enough to go by alone, but with the repeated blood findings in the stomach contents and feces, and the history, the combined picture was sufficient for diagnosis of ulcer. In fact, I should have advised operation here upon the repeated blood findings alone, if both x-ray records had been negative.

CASE 15. R. P., age 25. Two years ago the patient had a sharp attack of pain in the epigastrium followed by several days of dyspepsia. No vomiting. Since that time there have been several periods of dyspepsia lasting a week to a month with gnawing distress, coming as a rule one to three hours after eating, and raising of gas. For the last two months dyspepsia has been fairly constant.

Examination: Hemoglobin, 85%. Physical examination otherwise negative.

Tube examination: Fasting contents, 20 c.c. of clear fluid, no food, no blood, free HCl present. Test meal contents. Free HCl, 0.07%. Feeces examination negative.

X-Ray examination: Incisura in antrum wall. Peristalsis vigorous on lesser curvature. X-Ray diagnosis, ulcer of lesser curvature near antrum. With this finding further tube examinations were ordered. All of them were negative as well as all feces examinations. The patient was operated upon with the diagnosis of gall stones, in spite of the x-ray diagnosis of ulcer. Gall-stones and some adhesions from gall-bladder to stomach were found. Here the incisura x-ray finding was not supported by tube findings as in the previous case, and it meant a different condition than in the previous case, though similar in type.

Definite tube findings also have a different interpretation according to the associate findings. For example, a hypersecretion or hyperacidity finding combined with an x-ray finding suggesting gastric duodenal ulcer, means ulcer. In the absence of such associated finding it may mean simple hyperacidity.

There are a few facts which I have had impressed upon me by experience in the study of stomach cases, which I wish to specially emphasize. The first fact is the danger in making a diagnosis by the record of symptoms alone in the face of negative tube, x-ray and feces findings, particularly if the diagnosis leads to advice for operation. The following case will illustrate this point:

CASE 16. A. R. Age 50. August 1914. One year ago the patient began to have distress in the stomach coming soon after meals and associated with vomiting from the start. The distress came daily, the vomiting three or four times a week in the early days. The condition has persisted. During the last month vomiting has occurred daily. No blood seen. The patient has lost 25 lbs. in weight in four months.

Examination: Patient thin but fairly nourished. Hemoglobin, 75%.

Tube examination: Fasting contents, 20 c.c. of clear fluid. No food, no blood. Free HCl present. Test meal contents. Free HCl, 0.06%. X-ray examination. Outline of stomach and duodenum normal. Peristalsis normal. Feeces test negative.

Here the history suggested marked stomach trouble as in Case 2, but all clinical findings were normal. A diagnosis of possible cancer was made by the attending physician and operation was performed. No lesion of the stomach was found. Gall bladder and appendix were also normal.

This case illustrates the danger of positive

diagnosis by history alone, with negative clinical findings. I was personally against operation in this case as I did not believe that either cancer or ulcer of the stomach capable of giving the symptoms recorded here could exist with negative findings both by x-ray and tube.

Here is another case showing the unreliability of a record of subjective symptoms for diagnosis:

CASE 17. R.A., Age 29. For two years the patient has suffered from dyspepsia continuously. The symptoms are distress coming one to three hours after meals, relieved by food, frequent regurgitation of sour fluid, no vomiting. Loss of 20 pounds in two years. The patient is a steady drinker but never gets drunk.

Examination: Hemoglobin 90%. Fasting contents, 50 c.c. of green mucus like fluid adhesive to the bowl. No food, no blood, no free HCl. The sediment is filled with epithelial cells in mucus. Test meal. Free HCl present, amount 0.03%, lower than the average normal. Feeces examination negative.

(To be continued.)

A STUDY OF THE EFFICIENCY OF MIXED TOXINS (COLEY) IN INOPERABLE SARCOMA. A CRITICAL ANALYSIS OF 134 MICROSCOPICALLY PROVEN CASES.

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(Continued from page 335.)

CASE REPORTS.

INTRAXASAL AND ACCESSORY SINUSES.

CASE 6. Personal Case. E. M. McK., girl of 12. Throat records, vol. xv, p. 161. Referred by Dr. Mosher.

Feb. 17 1911, record states: right incisor stands alone pushed out in front of tooth line. Gum on this side very much enlarged and darker in color than surrounding tissue. Both antra dark to transillumination.

Feb. 18, 1911. Operation, Dr. Mosher. Ether. Right upper canine removed and found to be sound. Tumor tissue hard and fibrous, slightly suggestive of osteosarcoma. This was found to extend upwards into antrum. The anterior wall of the antrum together with tumor removed with chisel. Cavity curetted. Considerable hemorrhage. Packed.

Pathological Report. Giant cell sarcoma.

March 1, 1911. Toxin treatment started and continued for six weeks. Maximum dose, 2½ minims. Constitutional reactions of moderate character. Local reactions (pain in cavity after injections) severe.

March 4, 1914, two years, eleven months since toxins discontinued, patient found in her new home. Well developed and nourished girl of good color

without subjective or objective evidence of recurrence.

May 29, 1914. Patient still well, three years, one month since treatment discontinued.

Criticism. Owing to the good results obtained by excision and curetting in cases of this type it may be argued that this case should be excluded. It has been included on account of the size and extent of the process. Recorded in Group F.

CASE 7. Personal Case. Referred by Dr. Mosher. Chondrosarcoma of the antrum, ethmoid, and sphenoidal sinuses. J. T., a weaver of 31. Throat records, vol. xxiii, pp. 41 and 255.

Nov. 11, 1912. Ten weeks ago struck over left zygoma with weaving shuttle. Swelling persisted and after two weeks began increasing. Slight exophthalmus for six weeks. Pain slight. Examination shows considerable edema of the left face. Tenderness to pressure over zygoma and antrum with dense shadow of all sinuses on the left by transillumination.

Nov. 12. Operation, Dr. Mosher. Zygomatic arch removed, exposing somewhat encapsulated tumor involving antrum, ethmoid and sphenoidal sinuses. Removed as completely as possible with the curette and packed.

In four days mixed toxin treatment begun and continued every other day for five weeks. Injections into abdomen with marked systemic and very marked local reactions. Maximum dose, 16 minims. No evidence of recurrence upon discharge (Dec. 24).

Pathological Report (1211-59), Dr. W. F. Whitney. Chondrosarcoma. Small piece of firm fibrous looking tissue. Microscopical examination showed growth of small cells in rather solid masses, in places with a hyaline degeneration, and in other places a myxomatous character, in still other places an appearance suggesting softened cartilage.

Two months later returned with recurrence size of walnut below left eye. Dr. Mosher performed an extensive operation, removing part of the superior maxilla. Nine months later in good flesh and color without evidence of recurrence. A few months later, however, an extensive recurrence developed involving the orbit and patient died. Recorded in Group C.

CASE 8. (Table, Case No. 4.) Case of Dr. L. L. McArthur of Chicago. Female, age 5½ years. Sarcoma of antrum and naso-pharynx.

Pathological Report. Round cell. Toxin treatment instituted and continued three months with disappearance of growth; but this recurred in a few months and proved fatal. Recorded in Group C.

TONSIL.

CASE 9. (Case No. 13.) Round cell sarcoma of the tonsil and neck. C. W., male, age 56 years. Growths of the right tonsil and neck for two months about size of an almond and English walnut respectively. Toxin treatment continued three months. Maximum dose, 5 minims. Reactions fairly severe. Tumors began to decrease in size after first week, became softer and more movable and disappeared in five weeks. Site of injections pectoral region. No recurrence 3½ years later. Recorded in Group F.

CASE 10. (Case No. 4.) Round cell sarcoma of tonsil and neck. A. L., female, 11 years of age. Growth of right tonsil and neck of a year's duration, size of half an egg. Toxin treatment continued six months with marked softening and entire disappearance in two months. Maximum dose 3 minims. Reactions marked. Injections into pectoral region and a few into neck. Well six years, seven months after toxins discontinued. Recorded in Group F.

CASE 11. (Case No. 3.) Small round cell sarcoma of the tonsil and neck. H. M., male, 32 years of age. A growth of two weeks' duration, involving tonsil and neck, was operated upon but speedily recurred despite x-ray and radium treatment. Pathological report of recurrence, a small round cell sarcoma. Toxin treatment for about seven weeks. Reactions marked. Growths entirely disappeared in six weeks. Injections into tumor and pectoral region. Interval between operation and toxins six weeks. Recurrence in other tonsil five years later. Twice operated. Death in two months. Recorded in Group C.

CASE 12. (Table, No. 84 and *Surg., Gyn. and Obst.*, 1911, vol. xiii, pp. 184-5.) Case of Drs. Crile, McMullen, Stanton, and Coley. Male, 35 years of age. An inoperable small round cell sarcoma of the tonsil and neck. Toxins instituted with almost complete disappearance in five weeks. The dose was then reduced and in another five weeks the tonsil was of twice normal size. Second microscopic examination, round cell sarcoma. Toxins continued with entire disappearance of tumor. Doses again reduced, followed again by recurrence. Death one year after treatment started. Autopsy showed no metastases except in neck. Recorded in Group C.

CASE 13. (Case No. 14.) Small round cell sarcoma of tonsil with metastases in both sides of neck. C., male, 42 years of age. Growth of right tonsil nearly blocking up pharynx with masses in both necks. Toxins instituted with entire disappearance of growths in four months. Injections into pectoral region. Maximum dose, 20 minims. Reactions severe. One year later recurrence in submaxillary region, size of hen's egg. Removed.

Pathological Report. Small round cell sarcoma. Toxins refused. Rapid recurrence and death within a year. Recorded in Group C.

CASE 14. Personal Case. Referred by Drs. Mumford and Porter. J. H. K. House No. 177039. Fireman of 25. A large round cell sarcoma of the right tonsil, size of ping-pong ball, pushing uvula to left, and of the right neck, 6 x 5 inches.

Pathological Report. (117-52.) Dr. H. F. Hartwell. "A small bit of tissue removed from a tumor shows microscopically tumor cells infiltrating muscular tissue. The cells composing the tumor are large round with very faintly staining cytoplasm and having deep staining nuclei. There are numerous blood vessels which lie in close relation to the cells. Here and there are larger-sized cells with multiple nuclei, which are frequently superimposed. There are a number of mitotic figures."

Treatment with toxins from July 18 to August 15, 1911. Sixteen injections. Maximum dose 18 minims. During first three weeks marked diminution in the size of the tonsil tumor, which became very fluctuant. Tumor in the neck practically disappeared. After this, despite increasing doses with

severe reactions, the tumors increased rapidly in size and the patient died Sept. 14, 1911. Recorded in Group C.

CASE 15. Personal Case. Referred by Dr. Farrar Cobb. Recurrent small round cell of tonsil and neck. A. B., Italian of 65. House records, S.S. vol. cvi, p. 277.

Admitted Sept. 26, 1910, complaining of soreness of left tonsil for three weeks. Local physician said to have removed a "piece of wood" from this tonsil one week ago. This tonsil is now the size of an English walnut, hard, not especially tender, and without ulcerated areas. Olive-sized gland behind angle of left jaw, hard and adherent, and slightly tender. Small pea sized gland above clavicle. Sept. 29, Dr. Knowles snared large portion of tonsil and removed the rest by dissection.

Pathological Report (109-123), Dr. Whitney. Lymphosarcoma. Left tonsil enlarged to the size of a small plum, soft and extensively necrotic. Microscopic examination of piece showed a growth of small round cells of lymphoid character but without any distinct follicles, but in places clearly infiltrating between bundles of muscle fibres. In these were numerous mitotic figures.

Oct. 5. Operation, Dr. Cobb. Extensive dissection of neck for removal of mass with tying of lingual and fascial arteries.

Pathological Report (1010-24), Dr. Whitney. Malignant lymphoma. Mass of glandular tissue 4 x 2 cm., which had broken down and contained considerable necrotic material. Microscopic examination showed a growth of small lymphoid cells, which were seen to be infiltrating into the surrounding fibrous tissue. There was no normal structure of the lymph node. Recorded in Group B.

PHARYNX.

CASE 16. Personal Case. Referred by Dr. Beth Vincent Aug. 20, 1912. G. P. O.P.D., No. 124742. Italian, 47. There was a firm ulcerating mass occupying the right tonsil, floor of mouth, base of tongue, epiglottis, soft palate, and pharynx. Laryngoscopic examination impossible. He spoke only in a thick whisper and could eat only liquids and very soft solids, much of which came out through the nose. Several sections removed under cocaine.

Pathological Report (128-121), Dr. Hartwell. "Specimen consists of several pieces showing, on microscopic examination a richly cellular tumor composed of spindle cells which are arranged in narrow bands interlacing with one another and running in all directions. Spindle-cell sarcoma."

Mixed toxin treatment instituted and continued regularly for four and one-half months. Maximum dose, 10 minims. The mass softened and sloughed out cleanly. He gained in weight and color, was able to eat more food without losing any through nose, and could speak distinctly. Against advice he then insisted on returning to work. In five months he was a pale, emaciated man with metastases in the lung, neck, and belly, practically unable to eat or make self understood by speech. Died August 22, 1913. Recorded in Group C.

CASE 17. Personal Case. Referred by Dr. Crosby Greene. Round cell sarcoma of the pharynx and soft palate. M. M., male, 32. House No., 192357, 193196, 193673.

Nov. 17, 1913, admitted with history of swelling in

throat of two months' duration. For past fortnight pain in right ear and "noises" in both ears. Deglutition difficult. Some dyspnea. Some difficulty in opening mouth. A somewhat pale, well built man. Teeth poor. Nose and ears negative. In soft palate a little to right of mid-line a large, hard, bluish red tumor, extending down into region of right tonsil and back into nasopharynx. Wassermann reaction negative. Oct. 17. Tracheotomy and enucleation of the tumor by Dr. Greene.

Pathological Report (1311-85), Dr. Whitney. Lymphosarcoma. An irregular piece of soft mushy tissue. Microscopic examination shows growth of small cells about size of lymphoid ones but without any regular structure.

Mixed toxins started in eleven days and continued for four weeks. Maximum dose, 3 minims. Reactions occasionally severe. Injections into growth which rapidly recurred. No appreciable effect upon this or metastases in the neck, which soon developed. Jan 5, 1914, Dr. Green excised glands of neck. Pathological report, round cell sarcoma. Recurrence occurred within two weeks. Recorded in Group A.

CERVICAL GLANDS.

CASE 18. (Case No. 7.) P. K., male, 41 years of age. Mass size of hen's egg in submaxillary region, operated upon but complete removal impossible, the tumor having involved the muscles of the neck and periosteum of the lower jaw.

Pathological Report. Small round cell sarcoma. Toxin treatment for one year with entire disappearance in three months. No evidence of recurrence 4½ years later. Recorded in Group F.

CASE 19. (Coley, Table, Case No. 6.) Recurrent small round cell sarcoma of the cervical glands. A. P., 2 years 10 months of age. After two attempts at removal followed by recurrence toxin treatment was instituted, when there was a series of tumors extending from clavicle to mastoid and also involving the axilla. Treatment continued three months with complete disappearance of all growths. Patient well twelve years later. Recorded in Group F.

CASE 20. (Case No. 11.) Round cell sarcoma of the cervical glands. H. W., male. Growth in submaxillary region size of pecan had been enucleated, followed soon after by recurrence size of a cherry. This also removed, followed within a week by diffuse recurrence.

Pathological Report. Small round cell sarcoma. Toxins started and continued for three months. The submaxillary growth had then disappeared and the other glands had not increased in size. A third attempt at removal was made, but complete operation was impossible. Toxins therefore resumed and continued nine weeks. Maximum dose, 9 minims. No evidence of recurrence seven months later. Recorded in Group F.

CASE 21. (Table, Case No. 3.) Case of Major C. G. Spencer, Royal Army Medical Corps. Small round cell sarcoma of the cervical glands. Corporal M. M., 25 years of age. Mass in left neck of a year's duration, excised, with rapid recurrence.

Pathological Report. Lymphosarcoma. Second attempt then made but incomplete, the left side of neck being filled with masses of large glands. Tox-

ins instituted and carried out in two courses of thirty-four days and one month each. Maximum dose, 8 minims. Injections into tumors with well marked local reactions. Masses entirely disappeared in one month. No evidence of recurrence nine months after treatment discontinued. Recorded in Group F.

CASE 22. (Table, Case No. 111.) Case of M. E. Green. An adult male with small round cell sarcoma of the cervical glands four times recurrent. Toxin treatment then carried out for several months with entire disappearance of growth. Patient well over three years later. Recorded in Group F.

CASE 23. (Case No. 15.) Round cell sarcoma of the cervical glands. F. W., male, 58 years of age. Removal of mass in right neck the size of a small egg, with recurrence within a month. Toxins then started and continued for eleven months. Maximum dose, $4\frac{1}{2}$ minims. Reactions moderate. Tumors entirely disappeared and no evidence of recurrence four years and ten months after toxins discontinued. Recorded in Group F.

CASE 24. (Case No. 12.) Round cell sarcoma of neck. A physician. Excision of the mass in neck had been practised, followed rapidly by recurrence, which in a month had attained the size of a fist. Toxins were then started, injections being given into pectoral region, and continued for three months with progressive decrease in size and softening. Maximum dose 20 minims. Six months after toxins discontinued no evidence of recurrence. Recorded in Group F.

CASE 25. Personal Case. Referred by Dr. Farrar Cobb. Multiple small round cell sarcomata. M. C., housewife of 55. House No. 186421.

Dec. 7, 1912. Six months ago began to have severe frontal headaches. Four months ago small hard swelling on right side of nose near bridge, which has gradually and painlessly increased in size. Three months ago mass discovered in front of right ear, which has also gradually and painlessly grown. About the same time a mass appeared just above right clavicle and another in right neck. A vigorous, somewhat obese woman with mass size of cherry on right side of nose, boggy to firm consistency, and firmly fixed. In right parotid region mass extending from zygoma over angle of jaw into neck and forward to region of submaxillary gland. Behind right sterno-mastoid muscle several pea to bean sized glands. In front and behind left sterno-mastoid muscle, several small glands also palpable. In right supraclavicular region a firm and freely movable swelling the size of a pigeon's egg.

Excision of several glands for diagnosis.

Pathological Examination (1212-45), Dr. Whitney. A packet of enlarged lymph nodes with homogeneous section. Microscopical examination showed normal structure of lymph nodes lost and a growth of small lymph cells size of lymphoid ones with numerous mitotic figures. Considerable hemorrhage throughout growth. On the edge it was sharply circumscribed and a singular growth was found infiltrating the surrounding fat tissue.

Toxin treatment started Dec. 17 and continued every two or three days until Feb. 15, 1913 (2 months). Maximum dose, 13 minims. Reactions very severe. During the first month of treatment the mass in the right parotid region diminished

very markedly. The mass over the clavicle became smaller. The mass on nose became softer. Despite these results a growth was developing in left submaxillary region and, although attacked vigorously with toxins, was not affected but grew steadily in size. The mass in right neck, however, practically disappeared. Toxins omitted. X-ray instituted. Patient died with metastases in abdominal wall, chest, and both breasts, in four months. Recorded in Group D.

CASE 26. (Case No. 16.) Round cell sarcoma of neck. L., male. Attempted removal of lympho-sarcoma of the neck with recurrence.

Toxins started, and after two months tumor had disappeared. Toxins continued four months longer. During the last two months of this period a recurrence had appeared which soon produced metastases in the axilla and abdomen. Patient died within a year. Recorded in Group C.

CASE 27. (Table, Case No. 26.) Case of J. A. Moore of Helena, Montana. Round cell sarcoma of the cervical glands. Female, 31 years of age. In January, 1894, unfiltered toxin treatment started for multiple supraclavicular masses. Treatment continued one month with entire disappearance of growths. These, however, soon recurred. Recorded in Group C.

CASE 28. (Table, Case No. 104.) Case of Dr. G. H. Muller of Philadelphia. A male with inoperable recurrence of lympho-sarcoma of the neck one month after attempted removal. Toxin treatment resulted in complete recovery. Patient remained well for four years, when local recurrences and intra-abdominal metastases appeared. Recorded in Group C.

CASE 29. (Table, Case No. 16.) Small round cell sarcoma of neck. Case of Dr. J. Collins Warren (B. M. and S. J., 1896, cxxv, pp. 673-674.) 45 F. Attempted removal of growth of submaxillary region unsuccessful.

Pathological Report. Small round cell sarcoma. Recurrence in two weeks. Under unfiltered toxins for three months with marked reactions. Entire disappearance of growth. Recurrence in three months. Recorded in Group C.

CHEST WALL.

CASE 30. (Case No. 33.) Spindle cell sarcoma of left half of thoracic wall. S. C., female 16 years of age. Tumor had appeared in left scapula region four months previously, had grown rapidly frontwards to the sternum and measured thirteen inches in breadth and two inches in thickness in the most protuberant part.

Pathological Report of the specimen, spindle cell sarcoma. Toxin treatment was started and continued for four months; injections into tumor. Whole mass entirely disappeared in three months. Patient in good health with no evidence of recurrence nineteen years later. Recorded in Group F.

CASE 31. (Table, Case No. 28.) Case of W. H. Battle of London. Fibrosarcoma of the chest wall. Male, 30 years of age. Toxin treatment undertaken for extensive growth in the pectoral region with masses in axilla above and below clavicle. Treatment continued four months with "almost complete disappearance." Well one year later. Recorded in Group E.

BREAST.

CASE 32. (Case No. 58.) Inoperable spindle cell sarcoma of the breast and axilla. Toxin treatment instituted for mass size of orange in left breast. Adherent to deep parts and extended into axilla. Section removed for examination.

Pathological Report. Spindle cell sarcoma. Entirely disappeared after 78 injections. In good health without trace of recurrence 18 years later. Recorded in Group F.

CASE 33. (Case No. 54.) Recurrent angio-sarcoma of breast. A. C., 59, female. Thrice recurrent angio-sarcoma of breast. Toxin treatment instituted when mass extended laterally from sternum to anterior axillary line and from clavicle above nearly to costal margin below. It was fixed to chest wall, composed of markedly protuberant nodules and considerably ulcerated. Treatment continued eight months attended by softening and progressive diminution in size of tumor. Mass then excised. No pathological report given. Seen eight years later with fractured femur. No evidence of former trouble. Recorded in Group E.

CASE 34. (Case No. 53.) Small round cell sarcoma of breast. K., 22, female. Four operations had been followed by recurrence. Toxins started and shortly afterward a fifth operation was performed. Toxins continued for three months. Recurrence again evident and removed. Seven and one-half years later patient in good health with no sign of recurrence. Recorded in Group C.

ABDOMINAL WALL.

CASE 35. (Case No. 73.) Spindle cell sarcoma of abdominal wall. H. L. G., female. Exploratory operation showed a tumor of four months' duration to be inoperable. It involved the entire thickness of abdominal wall and some of bladder wall.

Pathological Report. Spindle cell sarcoma. Toxin treatment continued three months with entire disappearance of growth. Patient well 12 years 3 months later. Recorded in Group F.

CASE 36. (Case No. 57.) Spindle cell sarcoma of abdominal wall and pelvis. J. F., 16, female. Growth of abdominal wall 7 x 5 in., apparently involving entire thickness, attached to pelvis, and from symptoms and position evidently involving bladder. Section removed.

Pathological Report. Spindle cell sarcoma. Mixed toxin treatment for about 4 months with disappearance of growth and improved general condition. No recurrence 19 years 7 months later. Six years after toxin treatment patient developed primary lesion of syphilis, which was cured by appropriate treatment. Recorded in Group F.

CASE 37. (Case No. 64.) Spindle cell sarcoma of abdominal wall. M. S., 18, female. Tumor of several months' duration of abdominal wall proved upon exploratory laparotomy to be both intra- and extra-peritoneal, but not connected with abdominal organs.

Pathological Report. Spindle cell sarcoma. After 30 injections of filtered toxins tumor disappeared. Reactions mild. Maximum dose, 6 minims. Patient well and without recurrence 1½ years later. Recorded in Group F.

CASE 38. (Case No. 2, p. 138.) Spindle cell sarcoma of abdominal wall. Case of Major C. G. Spencer of Royal Army Medical Corps. Female, 53. Growth of suprapubic region extending from pubes to within 1½ inches of umbilicus and 3 inches broad. Section removed.

Pathological Report. Spindle cell sarcoma. Attempted excision followed by immediate recurrence. Toxin treatment for about 3 months started 17 days after operation. Maximum dose, 6 minims. Tumor disappeared. Patient well 5 years later. Recorded in Group F.

CASE 39. (Case No. 55.) Fibro-sarcoma of abdominal wall. E. G. L., 28, female. Exploratory laparotomy revealed inoperable growth.

Pathological Report. Fibro-sarcoma. The mass extended into the abdomen, filling the right lower quadrant. Toxins started two months later and continued for ten weeks with disappearance of mass. Seventeen years later an abdominal hysterectomy was performed for fibroids. The abdominal wall was found normal and no trace of sarcoma was seen in the abdomen. Two years later (19 years after toxin treatment) patient still well. Recorded in Group F.

CASE 40. (Table, Case No. 97.) Round cell sarcoma of the abdominal wall. Case of Dr. Paul Pilcher. Male, 55. An exploratory operation revealed an inoperable growth of the abdominal wall. Section removed.

Pathological Report. Round cell sarcoma. Toxin treatment for four months with gradual and complete disappearance of the tumor. Well one year later. Recorded in Group F.

(To be continued.)

Medical Progress.

PROGRESS IN BIOCHEMISTRY.

By A. EVERETT AUSTIN, M.D., BOSTON.

AMINO-ACIDS.

Abderhalden¹ has been able to discover amino-acids in blood and blood serum, and to identify some of them. Since the separation of such acids has been accomplished in various ways, there can be no doubt whatever that free amino-acids are present in the blood. The methods of isolation, many of which are original with Abderhalden, are described in full.

Cambridge² estimates the amino-acids in the urine of diabetics by determining the total free ammonia according to Folin's method and the ammonia plus amino-acids by Marfatti's method (Formol titration); the difference is the measure of the amino-acid ammonia. This can be utilized for treatment and prognosis of the disease. In mild cases of diabetes no amino-acids are found, in severe forms they may amount to 0.5 gram per day; often they disappear when

the food contains no protein. In other cases they do not, under which conditions the prognosis is much more unfavorable.

Labbe and Bith³ have estimated the amino-acids in the urine of 120 individuals and, based upon this, came to the conclusion that whenever the functions of the liver are impaired, there is an increase of these acids in the urine. This increase is always an indication of the insufficiency of the liver in metabolizing the ultimate products of protein disintegration. In diabetes, with disturbances of nutrition and acidosis, this increase is the rule. In all other diseases where the destruction of the body's protein is rapid, and those ferments which separate the amino from the carboxyl molecule are weakened (pneumonia, leukemia, cancer and typhoid), the amino-acids are always found in the urine in much greater quantities.

The ability of the animal mechanism fully to synthesize the component parts of the protein molecule, when fed to it as fully split amino-acids, has been shown by Berg and Cahn-Bronner⁴, who have shown that the liver cells of animals thus fed exhibit exactly the same droplets as those fed on unsplit protein. These droplets possess all the characteristics of unmodified protein and never appear when fat or carbohydrates are fed; thus they have been able to demonstrate by the totally new method (histologically) the same fact as has been shown by metabolic experiments, the full synthesis of amino-acid.

BLOOD SUGAR.

Bing and Jacobsen⁵, using the method of Bang, have made a large number of estimations of sugar in the blood of healthy individuals, as well as in that of those suffering from many varied diseases. They claim that blood sugar of the normal person varies from 0.06 to 0.12%, with an average of 0.1%. After the ingestion of 100 grams of sugar, healthy individuals may react by an increase in the percentage, or may not. This is also true of many after any kind of carbohydrate food. Persons suffering from renal disease invariably have a glycosuria, which does not depend upon the greater blood sugar present, but upon some unknown factor. In diabetes there is not only an increase in the blood sugar after food, but also while fasting. There is no direct relation between the blood and urine sugar. Glycosuria may occur without hyperglycemia, due undoubtedly to a renal influence. The estimation of the blood sugar is of great value in prognosis, since, if there is no increase of blood sugar, though sugar may be found in the urine, it is a favorable omen.

INTESTINAL PUTREFACTION.

Rodella⁶ has attempted, by experiments on small animals, to determine the toxicity of stools in case of intestinal disease. His method was

to make a suspension of a gram of feces in five c.c. of sterilized water and then inject the same into a rabbit hypodermatically. A control was first made of the stools of normal individuals, both adults and infants. It was found that one gram of feces from a healthy individual will not cause the death of a rabbit. On the contrary, when there existed intestinal catarrh, of whatever origin or grade, whether accompanied with constipation or diarrhea, a gram of the feces proved fatal within a few hours when injected. Some individual peculiarities were noted, as follows: The infant's stools proved much more toxic than those of the adult; the degree of intestinal putrefaction cannot always be told by the effect of the fecal suspension when injected, but one can always differentiate between pathological and bland cases; furthermore, it is possible to detect latent tuberculosis in this way much earlier than in any other manner; there is no relation between the toxicity of the stool and its putrefactive changes. Some with no putrefactive products (indol, skatol, etc.) are extremely toxic, and others charged with these products are not at all poisonous.

GALACTOSURIA.

The utilization of lactose in watery solution, according to the experiment of Draudt⁷ on dogs with an Eck fistula, is reduced to 58% and of galactose to 21%, the remainder appearing promptly in the urine. Hence the liver holds a special power of converting these sugars into glycogen, a trait not possessed by other tissues of the body. Therefore a galactosuria indicates a more or less extensive separation of the hepatic cells from the portal circulation. During this alimentary lactosuria and galactosuria the sugar content of the blood is found increased. Its clinical application in hepatic diseases has not yet been demonstrated by the author. On the contrary, Maliwa⁸ believes that galactosuria is dependent upon both the liver and the kidneys. The liver determines the concentration of galactose in the blood. When its sugar-converting power is disturbed, with a normal absorption in the intestine, the concentration in the blood rises above the limit to which the normal kidney is adjusted. When the liver is normal, then a disturbance in the eliminating function of the kidney may allow the galactose to pass through into the urine, when the concentration of the blood is still within the limit established for the normal kidney. The quantitative application of the galactose test for impaired liver function must always be employed according to Woerner and Reiss⁹. Galactose must be given in doses of 40 grams, and when 3 grams or more of this appears in the urine it demonstrates a pathological condition of the liver. One hundred grams of levulose, however, must be taken, when if more than 0.7 gram is eliminated, the same conclusion is justifiable.

CHOLESTERIN.

Much interest has been aroused in the peculiarities of the cholesterin metabolism, and Picard¹⁰ has shown that, during violent exercise, the amount of this in the blood serum may become increased or diminished, but that whatever change takes place the opposite extreme always occurs in the adrenal capsule, so that a reciprocal relation always exists in these two as to their cholesterin content. This work has been carried still further by Havers¹¹, who, by experimental evidence, has demonstrated that the bile becomes much richer in cholesterin during hypernutrition, especially when the excess is made up largely of protein and fat. By restriction of food, fever and pregnancy, the amount of cholesterin becomes much lessened. After the birth of a child, however, the mother's bile becomes rapidly richer in cholesterin. Landau¹² has confirmed Picard in establishing the adrenals as the organs for the storage of cholesterin, which makes them a necessary intermediate agency in its metabolism. The human liver contains only insignificant quantities of cholesterin, and hence cannot be regarded as a depot for its storage. The spleen, lymph glands, and bone marrow also participate in the reception and metabolism of cholesterin.

METABOLISM OF IRON.

After a large amount of experimental work, Bayer¹³ has reached the conclusion that the spleen retains and holds the iron which becomes free from the breaking down of the cells of the body and prevents hemolysis. Furthermore, it utilizes this iron in the building of new cells, especially of hemoglobin. This organ also produces a hormone that paralyzes the autonomous system; when this hormone is eliminated, its influence is shown negatively by an increase in intestinal peristalsis. The spleen and thymus have a mutual compensatory action. That the quantitative estimation of the urine iron provides no measure of the destruction of blood in pernicious anemia, has been shown by Queckenstedt¹⁴, since its elimination by the kidneys is entirely independent of the iron metabolism in the body; the fecal iron also shows no relation to the rapidity or extent of the destruction of blood corpuscles. After removal of the thymus glands, the splenic function is much increased, and vice versa; the increased function of the thymus demonstrates itself in symptoms of an exaggerated vagotonus. The increased destruction of iron-containing cells after splenectomy is shown by a lessened erythrocyte count and hemoglobin, in a lymphocytosis and eosinophilia. In Banti's disease there is a severe check to the activity of the spleen, much as in myelolytic leukemia. In both cases, however, there is marked alteration in one function, not in all the activities of the spleen. In Banti's disease, after operation, the conditions are exactly the same as in a splenectomized normal individual.

URIC ACID.

Graham and Poulton¹⁵ have found that not only does the endogenous uric acid diminish when the protein food is removed from the diet, as was shown by Folin, but also that a similar diminution occurs when the carbohydrate food is withdrawn. From these facts they attempt to construct an hypothesis of the formation of this acid by synthesis of protein and carbohydrates.

Much discussion has been aroused as to the state of the sodium urate in super-saturated solutions. Kohler¹⁶ adds to this by experimental evidence that, by means of dialysis and electrical conductivity, he has proved sodium urate is not in a colloidal state in such concentrations, but in a true solution though a super-saturated one. In urine also there is a similar solution from which the natural weakly acid reaction sets no uric acid free, while, here, there is no equilibrium between urates and uric acid, since the conditions for solution are much more favorable.

From the investigations which Bass¹⁷ has conducted, he is assured that atophan does reduce the amount of uric acid in the blood. He attributes this to the action of atophan in stimulating the uric acid excreting power of the kidney. The question is then open as to whether this increased elimination comes from a more active formation or from a stored up supply. Hopes are offered that, by a more accurate estimation of this substance in the blood this matter may be decided.

By transfusion of the livers of dogs, Rosenberg¹⁸ has learned that it is possible to extract purin bodies, even when the dog has been kept on a purin-free diet; in fact there are two ways in which to vary the amount which can be extracted: first, before the transfusion by variation of the exogenous purins, the amount may be increased when the dog has been fed on nuclein-containing food and diminished on nuclein-free food; secondly, during the transfusion, when the quantity may be increased by the addition of atophan or adrenalin to the transfusing fluid. The increase under the influence of these drugs may sometimes be more than a half of the total daily purin output of the animal. His conclusion is that atophan mobilizes uric acid.

Working with the colorimetric method of Folin¹⁹, Steinitz has been enabled by his (Steinitz's) modification to estimate accurately and easily the uric acid in 10 c.c. of blood. His results show that the endogenous uric acid amounts normally to 0.02-0.04 parts per thousand, while that of the gouty individual increases to 0.04-0.075 per thousand. Great emphasis is laid on the diagnostic value of this increase, though one should not rely upon this factor alone for a diagnosis of gout.

TESTS FOR EARLY DIAGNOSIS OF GASTRIC CANCER.

The glycyl-tryptophan test has been subjected by Hauschild²⁰ to a rigid revision, who found that of 26 cases of benign achylia, 11 gave posi-

tive reactions (splitting of the amino-acid and detection of free tryptophan). His explanation is that gastric juice contains trypsin much oftener than supposed, but the enzyme is destroyed when any considerable amount of free hydrochloric acid is present. In one case reported of proven cancer, with a free hydrochloric acid of 16, the test was negative. Further, 28 cases of certain gastric cancer, proven either by a mass or by laparotomy, were tested and 19 gave positive reactions, while 9 were negative. Hence he comes to the conclusion that the test is associated, practically, with so many errors that it cannot be relied upon for an early diagnosis of cancer.

The quantitative determination of the dissolved albumen in gastric content extract, according to Wolff-Junghans, has been studied by Smithies²¹, who found that only 80% of true gastric cancer gave this test, while in benign achylia none responded to the test.

The detection of dialyzable digestive products, which we also hoped to be diagnostic of cancer, has been found by Wasserthal²² to be common in achylia. In gastric ulcers with hyperchlohydria the test has also been found positive, but very faint.

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Book Reviews.

Urgent Surgery. By FÉLIX LEJARS, Professeur Agrégé à la Faculté de Médecine de Paris; Chirurgien de l'Hôpital Saint-Antoine; Membre de la Société de Chirurgie. Translated from the seventh French edition by WILLIAM S. DICKIE, F.R.C.S.; Surgeon North Riding Infirmary, Middlesbrough; Consulting Surgeon, Easton Hospital. Third English impression. With 20 full-page plates and 1086 illustrations, of which 739 are drawn by Dr. E. Daleine and A. Leuba, and 198 are from original photographs. Vol. I: Introductory, Head, Neck, Chest, Spine, Abdomen. New York: William Wood and Company. 1914.

This is the first volume of the third English impression from the most recent seventh French edition. The author says: "The book has again been minutely revised and extensively remodelled. It has not been enlarged, though this edition contains five new chapters on acute dilatation of the stomach, acute pancreatitis, obstruction of the mesenteric vessels, sigmoiditis and perisigmoiditis, and dislocation of the pelvis, many technical changes and new methods, and 92 additional figures; but on the other hand, many of the old figures have been reduced in size, most of the photographs eliminated, and the text in places abridged."

This new edition of a well-known book is admirable. Previous favorable criticisms must be repeated. The book is essentially French. It is, after all, practically a manual of operative surgery, since all surgical procedures are, nowadays, at least, potentially urgent. Most of its references are to French and continental authorities. No mention is made of the exceptionally efficient American bone instruments. There are, it is true, a few references to articles written by American surgeons, but they form a very small proportion. This is, of course, not necessarily a disadvantage, for the American reader is naturally familiar with American literature, and glad to get a large number of references to continental authorities.

The printing of the book is equal to the best that we have come to expect from the American Press, and the volume is lavishly illustrated by accurate and artistic pictures, essentially French in detail and finish.

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THE QUESTION OF EARLY MARRIAGE.

IN the issue of the JOURNAL for January 28, we published an editorial on "The Biologic Aspects of Early Marriage," in which we referred to the offer of a reward of \$200 by Caspar L. Redfield of Chicago, for the reporting of human cases "where rapid breeding led to good results from an intellectual point of view." The time limit of this offer expired without the production of evidence of the kind required, but at the annual meeting of the Council of the American Genetic Association it was voted that, the question being still open, Mr. Redfield be invited to extend his offer for another year. This extension was granted and the offer is now open until December 31, 1915.

In our previous editorial we commented at length on Mr. Redfield's position as evidenced in his paper on "The Results of Early Marriage" in the *Journal of Heredity* in July, 1914. This position is further discussed in another contribution on "The Early Marriage Question" in

a later issue of the same publication. In support of the contention in favor of the twenty-five year generation, as made in the JOURNAL, is cited an article by R. H. Johnson in the *Journal of Heredity* for March, 1914.

"Suppose a generation to be 25 years or 33 1-3 years respectively in two different stocks, and that all persons marry and each couple have four surviving children, or two for each parent. The result is that the 25-year stock constitutes two-thirds of the population at the end of a century."

"By a combination of these two causes (to which might be added the lower death-rate claimed among the children of young parents), the result is, as Galton says, that 'if the races best fitted to occupy the land are encouraged to marry early, they will breed down the others in a very few generations.'

"Something similar has happened in New England and many other regions, where a fertile foreign stock, marrying early, has nearly supplanted the earlier stock. The fact has frequently been a text for eugenic sermons."

It was in reply to this paper that Mr. Redfield's offer was originally made, he holding the converse position. Among the pedigrees submitted in competition for this offer were several by J. B. Nicklin, Jr., of Chattanooga, Tenn., including those of the present royal families of England and Germany, the Austrian, Swedish and Danish royal families, the Washington, Lee, Taylor and Hamilton families of America. Mr. Nicklin believed that these proved the production of four, five and six desirable generations in a century. Mr. Redfield, however, did not regard these data as fulfilling the terms of the offer, his objections being as follows:—

"First, the persons named are not among 'the 2000 or 3000 intellectually eminent men known to history,' whose names are recorded in ordinary encyclopedias because of intellectual achievements. Not all royal personages noted in encyclopedias are there because of their intellectual superiority.

"Second, the pedigrees given are neither complete pedigrees, nor in the tail-male lines for partial pedigrees.

"The generations of the offer are periods of time between parent and offspring. Except in the last case, you give four such periods, and consequently four generations, instead of five, as you represent it.

"Examples of breeding much more rapid than those you give are quite common, as among the 'Jukes' and other degenerate families of the United States; also in Asia, Africa and Polynesia. Marriages between boys less than 17 and girls less than 15 are the ordinary thing in many places. But the trouble with that kind of

breeding is that it does not produce superior individuals. When we come to the greatest men, they are not produced when the breeding is as rapid as three generations to the century. My money offer was for the purpose of finding any possible exception, if it existed."

Other similar pedigrees were submitted by Mrs. Elizabeth Sourdry of St. Louis, Mo. The following were Mr. Redfield's objections and comments on her material:—

"The first objection is that these men are mental mediocrities and not intellectual giants. William II is prominent because he inherited the position of emperor, but he has to his credit no intellectual achievements. If you are going into royalty I think that you should take such men as Augustus, Peter the Great or Gustavus Adolphus.

"Consider Moses, who not only controlled an unruly mob but who formulated moral laws and regulations which are good after nearly 3500 years.

"Consider Confucius, whose intellect produced the moral precepts which have guided hundreds of millions for more than 2500 years.

"Consider Aristotle, who was the main scientific authority for the world for more than 1000 years.

"Imagine a sickly little fellow sitting in Washington and changing this republic into a monarchy by the sheer force of his intellect. Imagine his influence with Congress being so great that the country would officially confer on him a title certifying the profound respect all entertained for his surpassing wisdom. That would be Augustus of Rome."

After careful consideration of the letters submitting these two groups of data, the council of the American Genetic Association decided that the requirements of the offer had not been fulfilled. Subsequent to this decision Professor Johnson further submitted a letter reiterating his position, in part as follows:—

"Mr. Redfield is quite safe in holding that in illustrious stocks the generations are long. It is just this that I contend calls for remedy. To conclude from this, however, that late children are superior mentally is wholly unwarranted. Such late births will still be found to be prevalent with the superior, irrespective of whether late children shall be shown to be equal or superior to early children from the same parents. The reasons for these delayed marriages and births are now too familiar to call for repetition here.

"May I in turn suggest to Mr. Redfield a sound method of testing his hypothesis? Ascertain the number of brothers and the ordinal position among these of all the men in some standard collection of the names of illustrious men which will furnish the desired information. Sisters, owing

to the different chance of becoming renowned, and half-brothers and step-brothers are not to be admitted. Compare the age of the parents at the birth of the most illustrious with the average age of his brothers in each family. Aside from this, even if Mr. Redfield's hypothesis prove correct, is it still true that inferior stocks are producing more early children as well as children in general than are the superior stocks. The mere lengthening of the generations of all stocks will not change the ill-balanced production of the next generation. It is necessary to increase the reproduction of the superior relative to the inferior, no matter to what other device resort may be had. Later marriage of the superior as compared with the inferior is, therefore, necessarily dysgenic."

As a matter of fact it seems that probably Professor Johnson's position is more fundamentally sound than that of Mr. Redfield's, though his contentions cannot be considered as yet proved. What is really desirable is not the production of the largest number of individuals of intellectual or other eminence, but of a community with a minimum of defectives and a maximum of physically and intellectually wholesome individuals of the most durable and most highly potential stock. The precise method by which this may be attained is yet to be determined, if indeed it be determinable otherwise than by slow and natural evolutionary processes.

A NEW ERA IN CHINESE MEDICAL EDUCATION.

So intently has the spirit of scientific medicine in America centered its attention on Europe in matters of professional regard, that affairs of epochal importance may occur in other parts of the world without the merest recognition. In spite of the rapidly developing relations between China and America, the medical profession of America has kept itself comparatively uninformed of medical progress and conditions, as well as of medical opportunities in China. It is *a priori* true that the medical future of China and her advance in paths of sanitary and public health reform, are bound up in the development of a native Chinese school of medicine, which, having been trained by the West, shall be able and eager to apply that training, under most favoring circumstances of popular support, and

knowledge of local conditions, to the upbuilding of Chinese social and sanitary life. Western medical education in China has been thus far a protégé of the missionary movement, and while the Chinese government and local institutions have made various more or less successful attempts, various defects have to a great extent nullified both types for effective service.

There has, however, within the past year been put in operation a plan for medical education which avoids the defects of both the older systems and which has many advantages they could never claim. At the biennial convention of the China Medical Association held at Shanghai, Feb. 1 to 5, 1915, Dr. F. C. Yen (Yen, F. C. An Example of Coöperation with the Chinese in Medical Education) described the plan and inauguration of the Hunan-Yale Medical School at Changsha in Hunan Province in Central China. Dr. Yen is a senior member of the medical staff of Yale-in-China. Because of his Western professional training and his influential relations in China, he combines in a singular degree the advantages of modern scientific ideals and of leadership with the Chinese. The Hunan-Yale Medical School exists under a coöperative contract between Yale-in-China and the Hunan provincial government. The peculiar advantage of such coöperation lies in the fact that it enlists the good will of the Chinese, removes suspicion by making them partners, secures indispensable practical aid, and gives the institution permanency.

Dr. Yen describes the seven years of preparation for this agreement on the part of Yale by an unvarying policy of cultivating the friendship and confidence of the Chinese. The result was that the announcement in 1913 of a large gift in America for a new Yale Hospital was followed at once by a petition from the Chinese that Yale-in-China should coöperate with the provincial government in a scheme for medical education in Changsha. "On their own initiative, over eighty of the prominent gentry of Hunan, led by provincial officials, sent a joint petition to the governor, requesting him in the name of the Hunan government to enter into a working agreement with Yale for the immediate establishment of a medical school. This request was granted and the agreement was signed in July, 1913, between Yale on the one side and the governor representing the Hunan government on the other. Thus was born the Hunan-Yale Medical School."

Under this agreement, provision was made in addition to a medical school, for two nursing schools for men and women respectively, a teaching hospital, and a research institute for the investigation of public health problems and diseases peculiar to China. The government undertakes to provide school buildings to cost \$156,000, Mex., nine acres of land valued at \$50,000, Mex., and an annual sum for maintenance of \$50,000, Mex. Yale's share is to supply a hospital costing \$150,000, gold, and a staff of fifteen doctors. To avoid establishing a precedent which might be turned to ulterior ends by other persons wishing to make direct contracts with provincial governments, the Peking government required that the Hunan-Yale agreement should be drawn between Yale and an incorporated association of Chinese, including the provincials and representing the provincial government. The obligations of this association are borne by the government.

The institution is controlled by a board of twenty trustees, half Chinese and half from Yale. An executive committee of seven transacts current business. The contract is to last ten years on trial, and if found satisfactory, is then to be subject to indefinite extension. The Chinese members of the board of trustees have voluntarily placed entire authority in technical matters with the Yale medical staff. They have also insisted that English must be the teaching language of the school.

The Hunan-Yale coöperative agreement for medical education has undergone severe testing and is the stronger for it. It has twice been submitted to the cabinet of Yuan Shih-kai and twice approved. It has been approved and supported by three successive governors of Hunan province. It has received formal sanction and approval from the Boards of Education, Finance, and Foreign Affairs of the Chinese national government. It has been supported by two parties of opposite political views in Hunan. The government has paid \$20,000 of the first installment and has given outright buildings valued at \$50,000, Mex., for the use of the school and hospital, pending the erection of permanent buildings. A medical preparatory course and the two nurses' training schools are now in operation, and the Yale Hospital is under the control of the joint board.

It is significant that the Hunan-Yale medical agreement has been inaugurated at the initiative of the Chinese in a province which is perhaps the

most independent and haughty of all China, and that it is being supported with enthusiasm and loyalty by the Chinese. It is entirely without precedent in China and marks the inauguration of a new era in the medical development of China. Dr. Yen closes his paper with the significant words: "The time has come when coöperation with the Chinese is no longer an idle dream, but may be materialized in fact. The Chinese are getting to know the foreigners better and are prepared to unite with them in such movements as this. But the initiative must come from the foreigners. Where coöperation is sought it is given, but the degree of success must necessarily depend on the spirit in which it is entered. In proportion to the fairness, loyalty and enthusiasm of the foreign party, will be the cordiality, interest and support of the Chinese."

THE MEDICAL EXAMINATION OF TRANSPORTATION OPERATORS.

THE really great progress made in the perfection of mechanical contrivances in recent times, has given a false sense of security in trusting the safety of operation to the automatic in mechanisms, and in neglecting the human physical element almost entirely. This is the ideal in mechanics but it disregards the fact that human physical development and human acuity and refinement must keep pace with the mechanical refinements, and that the latter is the outgrowth of the former. The highest degree of safety in the operation of mechanical devices is attained only with a high degree of human efficiency and refinement. The more accurate and the finer the instruments, the more delicate must be the human forces which control them. The greater the force put into harness by mechanical genius, the greater element of destruction it may become unless under the control of the most perfect physically and the most well-balanced mentally that advanced regulation can enforce.

This indication has been long recognized and in a measure been met in navigation, especially in the matter of visual acuity and color perception of those actually engaged in the navigation. The perception of red and green is of the utmost importance because these colors are used to in-

dicate danger, safety and direction. Blindness to these colors makes navigation almost impossible. The control of the navigable waters by the central government allows uniformity of examination of navigators to see that the visual and color requirements are carried out. The color and visual requirements are rather gross and should not embrace the only attempts at the selection of human fitness comparable with the mechanical magnitude.

The alarming increase in land transportation disasters calls attention to the fact that railroad and other vehicles do not have even the little regulation that navigation has, even though transportation on land is as great as, if not a greater medium than, on water. To require a pilot to conform to the color and visual requirements when his field of operation is wide, his speed comparatively slow, and with assistants usually many, should require engine and other transportation operators, who control mechanisms of high speed and higher destructive power, to conform likewise to a uniform standard of fitness, maintained by constant supervision. This should apply to automobile operators who run between the States. All forms of transportation which engage in interstate traffic of any kind are under the control of the central government, which has sole and plenary powers in such matters. All persons, therefore, engaged in the operation of vehicles in interstate traffic should be required to undergo periodic examination by medical officers of the Public Health Service, who already conduct the examination of navigators. And the enlargement of the physical requirements, to embrace not only the visual and color elements, but all physical and mental elements, would guarantee the highest efficiency and the greatest safety.

Evidence of alcoholic indulgence should be a bar to license. The heat and the stress of a "run" of locomotive operators react badly on those addicted to alcohol, either steadily or dipsomatically. Many examples of poor judgment, ignoring of signals, physical inability and exhaustion would be eliminated. In this respect the Navy has set an excellent example. Alcoholic sclerosis and the allied mental phenomena and the consequent instability are not compatible with work of this nature.

A mental examination would in many cases detect incipient paresis and other forms of psy-

oses which must be large elements in inefficiency of operators.

Legislation for the uniform control of the operators of vehicles engaged in interstate traffic a logical measure of progress—no issuance of license or renewals except after successfully passing a rigid medical examination. This should include the physical, taking into consideration the kind of vehicular operation engaged in, and emphasizing cardiovascular scleroses; a mental examination for all forms of mental aberration, but especially general paresis, alcoholic and drug intoxications and psychoses. The time may come, let it be hoped in the near future, when persons will be barred from these occupations because temperamentally unfitted.

THE IMPORTANCE OF PREGNANCY CARE.

THE lowering of the rate of infant mortality everywhere that special attention has been given to it, although in itself very encouraging, should not blind us to the immense amount of loss of life which is never recorded at all, as from abortion and miscarriage; or but scantily noticed, as in the high percentage of stillbirths which pass unconsidered in reckoning the death-rate. In every hundred pregnancies probably at least 10% fail of fruition, and between 30 and 40 children out of every 1000 are born dead. Without counting these stillbirths the deaths of children during the first month of life amount to between 35% and 40% of the total deaths occurring in the first year, and the greater part of these early deaths are due to prenatal causes or to accidents of childbirth, most of which are preventable.

The value of pregnancy care is shown very graphically by the statistics for five years of such work, given in the last report of the Committee on Prenatal Care of the Women's Municipal League of Boston, for, as this committee have no obstetrical care to patients until after the date of this report, pregnancy care may fairly be considered as being largely responsible for the results. One nurse alone was employed, and the work has always been carried on as an experiment,—to test methods rather than to accomplish results on a large scale.

Cases carried safely to labour.....	1512
Death during labour.....	0
Deaths during childbirth.....	9
Percentage	6%
Miscarriages	3
Percentage	19%
(No miscarriage has occurred during the past 3½ years.)	
Babies born	1522
Average birthweight including premature babies	7 lbs. 11 oz.
Premature babies including twins and still births, percentage	1.7%
Stillbirths including premature births for two years	1.8%
(Less than half that of the rest of the City of Boston.)	
Deaths of babies born alive but dying in first month	43
Percentage	2.8%
Deaths of babies born alive but dying in first month throughout Boston, percentage	4.3%
Cases of eclampsia.....	4
Percentage	2%
Cases of impending eclampsia—diagnosed as such by hospitals and physicians.....1st year	60
Steadily decreasing until these number in the 5th year	2

Although no care has been taken of patients by the committee after the onset of labor, one visit has been paid at the end of a month after the birth of the infant to ascertain the method of feeding and the condition of the child. The results follow:—

Breast-fed, wholly, percentage.....	84.7%
Breast-fed, partly, percentage.....	4.5%
Total	89.2%
Bottle-fed	10.8%
Well at the end of month, breast fed wholly...	97.5%
Well at the end of month, breast-fed partly...	92.3%
Well at the end of month, bottle-fed.....	72.4%

These figures speak for themselves and further comment is unnecessary.

ANNOUNCEMENT.

WE desire to call the attention of our readers to certain alterations and, we believe, improvements in the current literature department of the JOURNAL. Beginning with this issue, the custom is abandoned of reprinting the table of contents of each periodical reviewed, in the belief that this repetition is really not of sufficient value in proportion to the space it requires. Instead, the entire space available for current literature is, and will

be, devoted to the publication of more elaborate and carefully prepared abstracts of selected articles, each under the title of the article, with reference to its place of publication. Further, these abstracts are grouped under appropriate departmental headings, so that these columns will present, each week, a comprehensive topical survey of the field of recent medical literature. The method thus adopted is essentially that which has proved successful in the English and other foreign medical publications.

After careful consideration, it has been determined to place the current literature columns in the advertising pages of the JOURNAL. It has been called to our attention by various readers that, to them, the value of the current literature abstracts lies chiefly in clipping these abstracts from the JOURNAL to file in a permanent index or card catalogue form. With the current literature in its former position in the body of the text, this could not be done without mutilating the JOURNAL and making it unfit for subsequent binding and permanent preservation. By placing the current literature in its new position, this clipping is made possible without such mutilation of the permanent portion of the JOURNAL. It will be observed also that the columns are so arranged that no two abstracts come back to back, so that all may be clipped without injury to any.

We believe that the value of current literature abstracts is greater for such use at the time of publication than for binding with the JOURNAL after the original material which they represent has passed into medical literature and is fully recorded in bibliographies and indices. Moreover, to place the current literature department in this way is an aid in maintaining and raising the high ethical standard of advertising which the JOURNAL has undertaken to observe. We believe that such a mode of arranging and displaying the current literature abstracts will make them in every way more attractive, serviceable and valuable to our readers.

MEDICAL NOTES.

RED CROSS TUBERCULOSIS FUND.—Report from Washington, D. C., on Feb. 26 announces that the sale of Red Cross seals in 1914 amounted to a total of \$2,320,000, which will be devoted to anti-tuberculosis work in the United States. Over seven million more seals were sold than in 1913.

AMERICAN MEDICAL ASSOCIATION.—The 66th annual convention of the American Medical Association will be held at San Francisco from June 21 to 25, inclusive. The railroad agencies have organized and announced a series of various trips that may be made from Eastern cities, taking in not only the convention, but a number of interesting points along the routes in both directions. Various combinations will be made to suit the time, convenience and interests of different individuals. It is hoped and expected that this opportunity, combined with the attraction of the Panama-Pacific Exposition, will make the attendance at this meeting the largest in the history of the association.

EUROPEAN WAR NOTES.—It is announced that thirty hospital ambulances, with a complement of surgeons and nurses, are shortly to be sent from France to Russia to assist the Russian army medical corps in its care of the wounded.

It is reported that the American British War Relief Association has recently sent \$800 worth of ether and chloroform and 12 cases of medical supplies for distribution and use in the military hospitals at Rouen and Havre, France.

On March 5 the total of the New York Belgian Relief Fund amounted to \$952,877.15; the New York Red Cross fund to \$464,796.11; and the Committee of Mercy fund to \$122,125.72.

On March 5 the New England Belgian Relief fund amounted to \$225,539.86; the Polish Relief fund to \$24,711.22; and the Lafayette fund to \$10,023.00.

Report from London on March 2 states that since the beginning of the war only 569 deaths have been caused by disease among the British troops. Of these, only 51 have occurred among troops at the front. The remaining 518 have been among recruits in training in England, of whom 351 have died of pneumonia. The following table presents the statistics of the incidence and mortality of the important diseases among British troops at home and at the front since the outbreak of the war.

	Expeditionary *Force.		Troops in †U. K.	
	Cases.	Deaths.	Cases.	Deaths.
Typhus fever....	0	0	0	0
Typhoid fever....	‡625	‡49	262	47
Cholera	0	0	0	0
Smallpox .....	||	||	1	0
Scarlet fever....	195	4	1379	22
Diphtheria .....	||	||	783	6
Measles	\$175	\$2	1045	65
Dysentery .....	||	||	215	1
Pneumonia .....	||	||	1508	351
Cerebrospinal meningitis ....	||	||	62	26

* Up to Feb. 11. † Up to Jan. 31. § Including Indian troops—cases, 5; deaths, 0. || Returns not at present available.

ITEMS OF MEDICAL LEGISLATION.—On Feb. 24 the National House of Representatives passed a bill authorizing the establishment, under the United States Public Health Service, of a fed-

cal home for lepers. This bill has now been sent to the Senate.

On Feb. 24, the New Jersey Senate passed a bill advocated by the Rockefeller Institute for Medical Research designed to legalize animal experimentation in that state. This bill has now been sent to the House of Representatives.

On Feb. 27, the committee on public health of the Massachusetts General Court reported favorably a bill permitting the issuance of a search warrant for any kind of habit-forming drugs. The bill is aimed to supplement the action of the Harrison bill in suppressing the illegal use of such drugs.

On Feb. 23 a hearing was held before the committee on public health on the so-called interstate reciprocity bill, whereby it is provided that physicians registered in one state may practice in another without reexamination and registration. This bill was opposed by Dr. Walter P. Bowers and Dr. Arthur K. Stone, the respective secretaries of the State Board of Medicine and the legislative committee of the Massachusetts Medical Society. Dr. Bowers said in part:—"This bill is reasonable on the face, but in a number of states in which it has been tried it has been found that a man, incompetent in one state, has gone elsewhere on the reciprocity basis. This is an imposition on the state to which he goes, for he may take an easy examination in one state and go to another where the standard is higher, and thus compete with men much better trained. A well-equipped doctor does not object to taking another examination, for his previous record has great weight in passing him."

On March 2, a hearing was held at the State House before the legislative committee on public health, relative to a bill (Senate No. 228) proposed by the Massachusetts Dental Society, creating a new board of dental examiners, establishing a higher standard of dental education, and providing for the registration of so-called dental nurses. The bill was advocated by various dentists and opposed by others, among the latter being Dr. Thomas J. Barrett of the Massachusetts State Board of Registration in Dentistry. Much criticism of the bill was made that it was virtually agreed to draft a new measure, which was presented at another meeting of the committee on Monday of this week, March 8.

HARVEY LECTURE.—The tenth and last lecture of the current course before the Harvey Society will be delivered at the New York Academy of Medicine on Saturday evening, March 13, by Dr. Elliott P. Joslin of Harvard University on "Carbohydrate Utilization in Diabetes Based on Studies of the Respiration, Urine and Blood."

BOSTON AND NEW ENGLAND.

HARVARD CANCER COMMISSION.—The recently published second annual report of the Collis P. Huntington Memorial Hospital records the activities of this institution and of the laboratories

of the Harvard Cancer Commission for the year ended June 30, 1914. During this period a total of 150 out-patients and 48 ward cases with carcinoma were treated, and including cases of sarcoma, benign growths and other conditions, a total of 130 house patients and 230 out-patients were treated. The reports of Dr. Tyzzer, Dr. Ordway and Dr. Duane record the scientific activities in cancer and radium research. Dr. Duane's apparatus for the collection and purification of radium emanation is illustrated with two full-page plates. The report concludes with a list of the thirty-nine publications issued to date by the Harvard Cancer Commission.

APPOINTMENT OF DISTRICT HEALTH OFFICERS.—On March 1, with the approval of the Massachusetts Public Health Council, Dr. Allan J. McLaughlin, state commissioner of health, announced the appointment of the eight district health officers who are to have charge of the administration of public health affairs under the direction of the state department of health. These appointees are as follows:—

Dr. Lyman A. Jones of North Adams, Dr. William H. Coon of Haverhill, Dr. Merrill E. Champion of Arlington, Dr. Adam S. MacKnight of Fall River, Dr. William W. Walecott of Natick, Dr. Charles E. Simpson of Lowell, Dr. John S. Hitchcock of Northampton and Dr. Frank L. Morse of Somerville.

These physicians, who will be required to give their entire time to the work, will be assigned to the eight new districts established by the bill under which the present state department of health was organized. They will begin their duties on March 15. These appointments complete the working organization of the department.

HOSPITAL BEQUESTS.—The will of the late Dr. Henry Cecil Haven, filed for probate in Boston on March 2, contains a bequest of \$5000 to the Children's Hospital of Boston. Upon the death of a beneficiary the testator's real estate at Nahant, Mass., will revert to the Children's Island Sanatorium of Marblehead, Mass.

EPIZOOTIC OF FOOT AND MOUTH DISEASE.—On February 28 it was announced that two new cases of foot and mouth disease had been discovered at Waltham, Mass. Quarantine has been established in fifty-one communities, in thirty-two of which the disease was discovered in the first epizootic and in fifteen of which it is now present. During this second outbreak 640 animals have already been slaughtered.

The Animal Industry Department has sent out letters to the farmers of the Commonwealth, requesting them to maintain a strict quarantine on their own premises. It is the opinion of the department that the disease has been spread more by human beings than by the transportation of infected cattle."

On Feb. 28 also three new cases of foot and mouth disease were discovered in Oneida County, near Utica, N. Y. On March 1, 62 cattle of an infected herd were slaughtered at Woonsocket, R. I. On March 2, another case of the disease was discovered at Everett, Mass., and a new case at Fall River, Mass., making the sixteenth community in Massachusetts involved in this recrudescence epizootic.

On March 2, the ways and means committee of the Massachusetts House of Representatives reported favorably, with two amendments, the resolve (House No. 1729) accompanying Gov. Walsh's recent special message for compensation for cattle killed and property destroyed in controlling the foot and mouth disease in this state. The text of the resolve and amendments is as follows:—

“Resolved. That there be allowed and paid out of the treasury of the Commonwealth, from the ordinary revenue, a sum not exceeding one hundred and fifty thousand dollars, to be expended under the direction of the Commissioner of Animal Industry, for the payment of claims for cattle killed and property destroyed during the present epidemic of the foot and mouth disease; provided, that in cases where an appraisal has already been made by the State Department of Animal Industry or by the Federal Department of Agriculture, and assented to by the owner, the payment shall be limited to 50% of the appraised value; and that in all other cases the payment shall be limited to 50% of the health value of the cattle, to be determined by the Commissioner of Animal Industry, subject, both as regards cattle and other property, to the rights of arbitration and petition in the same manner as provided by section twenty-six of chapter ninety of the Revised Laws, relative to the destruction of animals afflicted with tuberculosis, so far as applicable. In no case shall the percentage of value to be paid by the provisions of this act, added to the amount allowed by the Government of the United States, exceed the value as hereinbefore determined.

“One amendment to the original resolve strikes out the provision that ‘in cases where the owner gave a purported bill of sale to the Commonwealth the owner shall be entitled to interest from the date of such bill of sale to the time of payment.’ It is stated that it has not been customary for the Commonwealth to pay interest.

“The other amendment changes ‘per cent.’ to ‘percentage.’ A ‘percentage’ is said to mean a sliding scale.”

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending Mar 2, 1915: Diphtheria, 68, of which 14 are non-residents; scarlatina, 87, of which 14 are non-residents; typhoid fever, 9; measles, 154; tuberculosis, 46, of which 2 are non-residents. The death-rate of the reported deaths for the week was 17.42.

Obituary.

HENRY CUTLER BALDWIN, M.D.

DR. HENRY C. BALDWIN died suddenly February 25, in his fifty-sixth year. Although he had been in failing health for some years, he had so successfully concealed this fact from his friends, and even from his family, that his death was wholly unexpected.

Dr. Baldwin was born in Roxbury, Mass., October 27, 1859, of excellent Colonial ancestry. He was graduated from Harvard College with high rank in the class of '80, which numbered Theodore Roosevelt among its members. He at once entered the Harvard Medical School, where he was also distinguished as a scholar. He thereafter served as surgical house pupil at the Massachusetts General Hospital and later, for a time, was an assistant physician at the McLean Hospital. Before entering upon his service at the latter institution, he made a trip around the world, the remembrance of which was always a source of satisfaction in his later years. Again, after leaving the McLean Hospital, he went abroad and took a course at the Rotunda Hospital in Dublin and also made studies and observations in the Salpêtrière in Paris and elsewhere on the Continent. Returning to America, he taught for a period at the Harvard Medical School and soon thereafter became associated with Dr. James J. Putnam in the neurological department of the Massachusetts General Hospital. He rose through the various ranks until he became one of the neurologists to the hospital, a position which he held at the time of his death. For many years he was officially connected with the Free Hospital for Women, but finally resigned to devote all his energy to the work of the Massachusetts General Hospital clinic.

Apart from his hospital work, in which his enthusiasm never flagged, he was, at one time, a member of Mayor Quincy's advisory board of visitors to public institutions and chairman of the board of trustees of the Boston Insane Hospital. These public functions he performed in addition to his active private practice, which concerned itself largely, but by no means exclusively, with disorders of the nervous system. He was a member of the Massachusetts Medical Society, of the American Medical Association, of the American Medico-Psychological Association, of the American Neurological Association, of the Boston Society for Medical Improvement, and of the Boston Medical Library. He was especially interested in the Boston Society of Psychiatry and Neurology, of which he was, at one time, president. At a recent anniversary dinner of this society only a few weeks before his death he took charge of the music and sang with his accustomed vigor.

Apart from his professional interests, which always occupied his chief attention, he took great pleasure in music and was himself the possessor of an excellent voice. He was a member of

the Cecilia Society, which he joined in 1883, singing at the first concert of the society in that year. He was several times a director of the society and, for the past three years, had been very active in maintaining its integrity. He never belonged to the so-called "Doctors' chorus," and the Harvard Alumni chorus. Vocal music was his special delight and relaxation. A further characteristic interest was his love for animals. He always had dogs of recognized lineage and was an enthusiastic horseback rider. Although in certain respects eminently social, he cared little for what is popularly called society; his work and his home life remained throughout his chief interests.

Of all his activities, his relation to the Massachusetts General Hospital undoubtedly took first place. He was an extremely loyal friend to the institution and worked always for its best interests. He was never neglectful of what he considered his duty, and up to a few days before his death was seeing patients and prescribing treatment as he had been doing for nearly three decades. He was a strict disciplinarian and felt very strongly that the welfare of the hospital depended upon the maintenance of this discipline. While he insisted that his subordinates should obey the rules strictly, he never shirked his own responsibility or regarded himself as exempt from the regulations which he imposed on others. The hospital has lost in him a loyal and devoted friend.

He was not a voluminous writer and he did not often take part in discussions at medical meetings, but his interest in the progress of medicine remained unabated. His strength lay in his power of organization and in his capacity to accomplish work which he set himself. He was indefatigable in his treatment, especially by mechanical means, of certain stubborn nervous disorders, and accomplished at times what seemed impossible in overcoming apparently hopeless muscular incapacity. He was no less active during the final years of impaired health than he had been before, and bore his increasing health courageously, with the determination, largely successful, of keeping from his colleagues the serious disability from which he was suffering. Although undoubtedly aware of his deplorable condition, even on the day of his death, during his periods of consciousness, he was normal in mind and apparently wholly unconcerned. As a man, few knew him intimately, but those who did found in him much to respect and admire. A widow and one brother survive him.

APPOINTMENTS.

UNIVERSITY OF LONDON.—*Dr. Edward Barclay-Smith*, Cambridge, has been appointed professor of anatomy at Kings College in succession to *Dr. Watterston*; and *Dr. E. P. Cathcart* of Glasgow has been appointed to succeed *Dr. Leonard Hill* as professor of physiology at the London Hospital Medical College.

Miscellany.

WORK OF DR. CARREL IN FRANCE.

THE Rockefeller Institute for Medical Research has recently communicated the following information relative to the work of *Dr. Alexis Carrel* in France. *Dr. Carrel* has now been detached from the Lyons Hospital and placed in charge of a hospital at the Campagne near the northern line of battle.

For the use of the patients in charge of *Dr. Carrel* and his assistants, the government has requisitioned a hotel, which has been converted into a hospital with accommodations for about one hundred persons. The government will provide administrative officers as well as competent surgeons suggested by *Dr. Carrel*, to carry on the regular work, thus leaving *Dr. Carrel* free to perform his characteristic operations, especially in the line of transplanting tissues, blood vessels and nerves, and blood transfusion, and to conduct the laboratory studies which are about to be undertaken.

In order that the work under *Dr. Carrel* may not only be of the greatest effectiveness at the moment, but may be made permanently available to the world of science, the Rockefeller Institute is equipping *Dr. Carrel's* hospital with complete apparatus for research in the bacteriological, pathological, chemical and surgical conditions which may arise.

Dr. Carrel, who was spending his vacation in France at the outbreak of the War, immediately offered his services to the French government, which were accepted. He was detailed to the military hospital at Lyons, at which there were referred to him especially the wounded with injured blood vessels and nerves, in view of the research work which he had done in these classes of injuries. From the application of the method which he discovered for suturing and transplanting blood vessels and tissue, it was possible to save limbs which otherwise would have inevitably been lost. *Dr. Carrel* has now been given special facilities as near as possible to the line of battle, because of the unusual conditions which have developed in this conflict incident to trench warfare.

It has been supposed that all future wars would yield small numbers of infected wounds. The facts, however, are that no previous war has yielded such a large number of infected wounds as the present one.

The reasons for this under the old conditions are developed to be as follows: poor hygienic facilities, infection of the wounds caused by the surgeons who carried the infecting germs on the operating instruments, dressings, etc., the introduction of infected material from without at the time of injury, were the sources of infection. In the present case the infections occur because the injured in trenches receive their injuries

from missiles which carry dirt and soiled clothing into wounds; and also because in many cases it is days before the injured can be removed. The infections have also been of an unusual character. Formerly they were usually suppuration and pus formation. Now they are commonly due to the development of gas in the tissues and to tetanus or lock-jaw.

"This gas infection is very serious in form. It originates in bacteria of the soil, particularly soil which has been under a high state of cultivation for a long period of years. The technological term applied to the condition in gaseous phlegmon. The bacteria which cause it do not grow except in the absence of atmospheric air which the injured tissues provide. In their growth they break up the constituents of the tissues and impart a gas in which hydrogen forms a large part. This gas penetrates the tissues and carries the infected material further and further and may penetrate into the blood, when it soon causes rapid death.

"Hitherto this class of infection has been so rare that adequate means for its prevention and cure have hardly been worked out. It is in order that he might have access to this class of cases, now, unfortunately, so numerous, that Dr. Carrel has been transferred to the northern field of war. It is in order that, in addition to the regular routine work of the care of the wounded, he may study these infections especially, he is being provided by the Rockefeller Institute for Medical Research with the medical equipment requisite for this work.

"In carrying out the enormous work incidental to military operations one government alone could hardly undertake at this critical period to organize hospitals and laboratories for conducting research work. They must be quite content to deal with conditions as they arise. It is just there that Dr. Carrel's peculiar qualifications come in, and in that respect that the contribution of the Rockefeller Institute is largely made.

"Hence it is that he is to have a staff consisting of bacteriologists, chemists and technicians, forming a laboratory unit in addition to the regular surgical unit of the hospital. He is fortunate in being joined by Dr. H. D. Dakin, who has been for many years in this country and has a distinguished reputation as a chemist. He has been assigned to take charge of the chemical part of this humane work of investigation.

"The Rockefeller Foundation has just voted an appropriation of \$20,000, to be used under the direction of the Rockefeller Institute, in furthering medical research work under war conditions.

"The Institute has had many appeals made to it for serum for use in the treatment of meningitis and dysentery and these serums have been distributed freely."

CO-OPERATION OF THE CLERICAL AND MEDICAL PROFESSION.

As the result of a suggestion in the editorial on "The Minister and the Doctor," published in the issue of the JOURNAL for Oct. 1, 1914 (Vol. clxxi, page 532), a committee was appointed by the Massachusetts Federation of Churches to confer with a similar committee of the Massachusetts Medical Society on the subject of co-operation between the clerical and medical professions in the solution of problems of public health. At a joint meeting of these two committees in Boston on Feb. 24, 1915, the following votes were passed as representing the opinion of the meeting:—

"1. That intimate and practical coöperation should be established and maintained between the Massachusetts Federation of Churches and the Massachusetts Medical Society for the purpose of improving public health in this Commonwealth.

"2. That the churches of every community (through their local federation, where one exists) should consult and coöperate with its physicians in matters of public health.

"3. That the fundamental need is that of a competent health officer in every city, township or group of towns.

"4. That whatever specific local needs in the line of health are discovered, should be taken up, both educationally and practically, by the co-operation of the churches and the physicians."

The committee representing the Massachusetts Medical Society consisted of Dr. Milton J. Rosenau, Dr. Annie Lee Hamilton, and Dr. Abbie Noyes Little.

Correspondence.

THE LABOR CLEAN MILK BILL.

CANTON, MASS., February 25, 1915.

Mr. Editor: I have read your editorial "The Labor Clean Milk Bill" in the issue of February 25th and am somewhat surprised that you recommend this bill for passage without more discussion.

At the present time it is absolutely possible to control the milk situation throughout the Commonwealth with the present powers given to local boards of health. They need no further authority.

For the past two years we in our town have been able to control the supply of milk sold in the town. This is our method: We license every dealer and producer. We examine the milk of every dealer both for cleanliness and quality at least once a month. His record for that examination is published each month in the local paper. Any dealer whose milk is below the standard is personally notified that he must improve. If his milk continues to be below standard we prohibit his selling until such time as we are satisfied that he produces clean milk. We hold dealers responsible for milk coming from dairies outside the town. This method has proved satisfactory and efficient.

When I first heard of this bill, I wrote to Mr. Myron E. Pierce, counsel for the Massachusetts Milk Consumers' Association, stating the above opinion. This is a quotation from his letter in reply: "There

no particular need of the bill so far as the powers local boards are concerned, but there is great need, seems to me, of some such bill to give the State board of Health adequate powers, etc."

Thus the bill seems to be one to increase the powers the State Board of Health and not primarily one enable us to obtain cleaner milk. This method of taining power for the State Board of Health seems me questionable. I believe with many others that e State Board of Health should have more authority all health matters but I do not believe they should ve a little here and a little more there, given them a series of various kinds of laws until it will be ry difficult to know just how much power they do ve in any particular case.

Let the State Board of Health be given adequate wer in all health matters and over local boards of alth, if you will, through some comprehensive legis- ion, but let us keep off the Statute books such un- necessary laws as this bill (Senate No. 78) will be. It seems to me this bill should be further discussed fore it is so heartily recommended.

Respectfully yours,

DEAN S. LUCE, M.D.

SURGICAL INSTRUMENTS FOR THE EUROPEAN WAR.

BOSTON, March 3, 1915.

Mr. Editor: I beg leave to make a final report on e instrument-collecting enterprise which you have e kind enough to notice in your columns.

Through the coöperation of the profession and veral of the surgical instrument makers in the city as able to send away—mainly to Servia and Rus- , but into France also—fourteen lots of instru- ents, consisting of three large barrels, two trunks, cking cases and a number of smaller packages. Besides these, Dr. Seabury W. Allen contributed a luable Heinze X-ray apparatus in excellent order. d in addition to the gifts from the surgical instru- ment makers which have been previously acknowledged, collection of instruments of value was sent me by e E. F. Mahady Company.

I desire again to express my appreciation of this d coöperation.

Very truly yours,

JAMES J. PUTNAM, M.D.

A REJOINDER.

DORCHESTER, MASS., February 20, 1915.

Mr. Editor: Dr. Richard C. Cabot in the issue of b. 18, 1915, of the JOURNAL, attempts to explain herein his attacks upon the medical profession agree th and differ from those of Mr. George Bernard aw. Had he brought his criticism to the Medical ofession through its regularly constituted channels communication rather than by way of the lay press ould not now be necessary for him to try to "court misrepresentations." Even if the alleged short mings of physicians were of flagrant and serious a ture, was it wise or necessary for a member of the ofession voluntarily to expose them before the ever rious public? Such methods undermine the confi- ence and lower the esteem in which we, as physi- ans, wish and ought to be held by the whole world. onstructive, helpful criticisms are always well re- ived and desired by medical men when advanced in e council chambers of their medical societies and urnals. However much one may coincide with t. Cabot's ideas relative to medical abuses, and his eories of medical reform, the profession may justly ittle and resent the manner chosen by him, in vling to bring about the changes which he advocates.

Very truly yours,

SAMUEL CROWELL, M.D.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMER- ICAN PHYSICIANS FOR THE AID OF THE BELGIAN PRO- FESSIO FOR THE WEEK ENDING FEB. 27, 1915.

CONTRIBUTIONS.

The Monmouth Medical Club, Monmouth, Ill.	\$ 10.00
The Adams Co. Med. Soc., Quincy, Ill.	12.00
Dr. Charles H. Smith, Uniontown, Pa.	25.00
Dr. Frederick J. Walter, Daytona, Fla.	10.00
Dr. Austin C. Brant, Canton, Ohio	5.00
Dr. William D. Byrne, Chicago, Ill.	5.00
Dr. Simon Levin, Lake Linden, Mich.	5.00
Dr. Miles F. Porter, Fort Wayne, Ind.	5.00
Dr. J. B. Duncan, Pittsburg, Pa.	10.00
Dr. J. M. Patton, Vandergrift, Pa.	1.00
Dr. N. B. Williams, Perkasi, Pa.	1.00
Dr. Wilson F. Phillips, Dorchester, Mass.	5.00
Dr. Donald C. Balfour, Rochester, Minn.	25.00
Dr. Austin Flint, Jr., New York, N. Y.	25.00
Dr. Evan T. Steadman, Hoboken, N. J.	10.00
Dr. John B. Nichols, Washington, D. C.	10.00
Dr. Hermann G. Klotz, New York, N. Y.	5.00
Dr. George P. Coopernail, Bedford, N. Y.	5.00
Dr. K. I. Sanes, Pittsburg, Pa.	25.00
Dr. Herman F. Vickery, Boston, Mass.	25.00
Dr. H. H. Atkinson, Fordyce, Ark.	5.00
Dr. Archibald MacLaren, St. Paul, Minn.	25.00
Dr. Helen C. Putnam, Providence, R. I.	5.00
Maricopa Co. Med. Society, Phoenix, Ariz.	25.00
Dr. J. D. S. Davis, Birmingham, Ala.	5.00
Dr. J. M. Popp, New Castle, Pa.	5.00
Dr. Horace Binney, Boston, Mass.	5.00
Dr. Warren Wilson, Northfield, Minn.	5.00
Dr. Gibbs Biscoe, Pendleton, Ark.	5.00
Dr. Eleanore Boulton, Philadelphia, Pa.	5.00
Dr. O. L. Perry, Elkins, W. Va.	2.00
Dr. John P. Getter, Belleville, Pa.	2.00
Dr. W. H. Witt, Nashville, Tenn.	5.00
Salt Lake Co. Med. Soc. Salt Lake City, Utah	50.00
New York Medical Union, New York, N. Y.	100.00
The Montgomery Co. Med. Soc., Dayton, Ohio	304.50

Receipts for week ending Feb. 27.....\$ 807.50

Previously reported receipts.....3579.00

Total receipts.....\$4386.50

Previously reported disbursements...\$3575.00

Disbursements, week ending Feb 27,

352 boxes of food @ \$2.30..... 809.60

Total disbursements.....\$4384.60

Balance\$1.90

F. F. SIMPSON, M.D., Treasurer.

In addition to the financial report for the week end- ing February 27th, the Treasurer would call the at- tention of the medical profession to the following letters:

"BALTIMORE, February 23, 1915.

"My Dear Dr. Simpson: Your letter of February nineteenth received. Madam DePage was in Balti- more for a short time last week. I told her something of the work that the medical men in this country were doing for their confreres in Belgium. She was much interested and most grateful for what had al- ready been done. She is in this country commissioned by the King of Belgium, to whom her husband is per- sonal physician, to do everything she could to secure contributions for her starving countrymen. Her ac- count of conditions in Belgium is pathetically interest- ing. The needs of her country beggar description. While so much is being done and has already been done by this country, so much more must be done in order to save from starvation many hundreds of men, women and children. I wish it were possible for everyone to hear her account of what the Belgians are doing for themselves and of their gratitude for what is being done for them and, at the same time, get some sort of an appreciation of the magnitude of the need for more and immediate assistance. I feel sure it would result in a more prompt and generous re-

sponse on the part of the profession than that which has already been made.

"Madame DePage herself is now on her way across the Continent and will visit as many cities and see as many people as possible in order to deliver her message.

"With kind regards,

"Sincerely yours,

"(Signed) J. M. T. FINNEY."

The efforts of the Committee of American Physicians for the Aid of the Belgian Profession are directed toward the relief of civilian physicians and their families in the northeastern or invaded portions of Belgium.

The purpose of Madam DePage is to establish additional field hospitals and further other Red Cross work in the southwestern part of Belgium.

In a recent letter she says: "The big conflict of the present war is still in the future; the most terrific fighting of all will come this spring. We must foresee the coming slaughter and be prepared to render instant aid to the thousands of wounded, friends and foes, who will fall within our lines."

The following is an extract from a letter from Dr. J. Riddle Goffe, under date of January 26, 1915:

"The fact that the English Government has announced that it will no longer continue to grant its monthly stipend to the British Commission for Relief in Belgium comes with somewhat startling disappointment."

The work of relief must now depend almost exclusively upon contributions from the United States. This means that our efforts must be redoubled if we are eventually to reap the benefit of what has already been done and carry the Belgian people through to the time when their own meager harvest can supply their actual necessities. It must be constantly kept in mind that the status of the 1,400,000 utterly destitute in Belgium are still standing in the bread line or hovering around the soup kitchens. A recent communication from Dr. Jacobs of Brussels, gives a heartrending picture of the condition of Belgian civilian physicians and their families.

The following letter is self explanatory:

"DAYTON, OHIO, February 25, 1915.

"My dear Doctor Simpson: Pursuant to a resolution passed by The Montgomery County Medical Society, Feb. 5, 1915, authorizing a committee of three of its members, to raise a fund for the relief of the Physicians of Belgium and their families, the pleasant task was immediately started with the result indicated by the inclosed New York draft for \$304.50. We but join you and the other members of your splendid Committee in the hope that every farthing of this offering may reach our afflicted brethren in Belgium and that the end is not in the far distance when lasting, permanent relief may be their heritage.

"MONTGOMERY COUNTY MEDICAL SOCIETY,

"By its Committee:

"J. MORTON HOWELL,

"GEORGE GOODRUE,

"C. L. PATTERSON.

} Committee."

SOCIETY NOTICES.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY.—A special meeting of the Society will be held at the Robert B. Brigham Hospital, Parker Hill Avenue, Brookline, on Wednesday, March 17, 1915, at 12 o'clock, noon.

Clinics illustrating the work of the several departments of the hospital will be given as follows:

Dr. Louis M. Spear, "Cases of Chronic Medicine."

Dr. Edward P. Richardson, "Cases of Chronic Surgery."

Dr. Charles F. Painter, "Cases of Chronic Arthritis."

Lunch will be served at 1 P.M.

To reach the hospital:

Automobiles take Huntington Avenue to Calumet Street, Hillside Street, Parker Hill Avenue, to top of Hill.

By electric: Huntington Avenue through Brookline Village to Waite Street.

LYMAN S. HAPGOOD, M.D., *Secretary*,
6 Garden Street, Cambridge, Mass.

AMERICAN ASSOCIATION OF IMMUNOLOGISTS.—The annual meeting will be held at Washington, D. C., May 10, 1915.

MARTIN J. SYNNOTT, M.D., *Secretary*,
Montclair, N. J.

GERALD B. WEBB, M.D., *President*,
Colorado Springs, Colo.

AMERICAN POSTURE LEAGUE.—The second annual luncheon of the American Posture League will take place at the Hotel Astor, New York, on Saturday, March 13, at 1.30 P.M. The Central Committee on Public Health Organizations, which meets in New York on the same date, has been invited to attend the luncheon. Several of its members are officers or directors in the Posture League.

The after-luncheon program will set forth the educational, scientific and welfare aspects of the work of the organization. The President and founder of the League, Miss Jessie H. Bancroft, will preside and will speak on the history, plan and work of the American Posture League; other speakers will include Dr. Fredrick R. Greene, of Chicago, first vice-president of the American Posture League, and secretary of the Council on Health and Public Instruction of the American Medical Association; Dr. Joel E. Goldthwait, second vice-president, and Dr. E. G. Brackett, both of Boston. Dr. Eliza M. Mosher, Dr. Henry Ling Taylor, secretary, and Dr. S. Josephine Baker, of New York. Dr. Percy W. Roberts will present an important report of original research conducted by the League. Dr. Anna L. Brown will tell of the National contest on Posture being conducted by the Young Women's Christian Association, and Mr. Harry O. Bullock will speak for the Brooklyn Rapid Transit Company, relative to the seats in the new subway cars, which the Posture League designed in cooperation with the construction engineers of the company.

The annual meeting for the election of directors and officers will occur earlier in the day.

H. L. TAYLOR, M.D., *Secretary*.

RECENT DEATHS.

DR. JAMES F. DONNELLY, who died on February 2 at Nish, Serbia, was a graduate of the University of Louisville and a practitioner in New York City. He went to Serbia in November, 1914, with an American Red Cross unit. The cause of his death was typhus.

DR. O. K. SPRENGEL, surgeon-in-chief of the public hospital at Braunschweig, Germany, and president of the German Surgical Association died recently of septic infection at the age of 62.

DR. JAMES PECKHAM CAMPBELL, who died on Feb. 27 in New York City, was born in Lewes, England, on August 18, 1833. Migrating early to the United States he became a student at Syracuse University, at which at his death, he was the oldest living graduate. After studying medicine he was for a time a surgeon of the Cunard steamship line and later settled in the practice of his profession at Norfolk, Va., and in New York City. He is survived by three daughters and three sons.

DR. LUTHER GRAVES TOWNSEND, a retired Fellow of The Massachusetts Medical Society, died at his home in Townsend, Mass., March 1, aged 70 years. He was born in Nashua, N. H., Dec. 12, 1844, and was graduated from the Harvard Medical School in 1871, serving as house physician at the Boston Lunatic Hospital and at Deer Island after graduation. He practised at Townsend the rest of his life and was member of the school board of that town from 1888 to 1900.

The Boston Medical and Surgical Journal

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Original Articles.

PROGRESSIVE NEURO-MUSCULAR ATROPHY, (PERONEAL TYPE OF CHARCOT, MARIE AND TOOTH): WITH REPORT OF THREE CASES IN A FAMILY WITHOUT HEREDITY.*†

BY FLOYD F. HATCH, BOSTON.

[From the Medical Clinic of the Peter Bent Brigham Hospital, Boston, Mass.]

THE impulse given to the study of this type of muscular atrophy came in 1886 when Charcot and Marie¹, and Tooth² coincidently in the same year published papers reviewing the myopathies. Separately they established from clinical and pathological observations that the peroneal form, beginning usually in early childhood and involving the extremities only, depended upon neural as well as muscular degeneration and isolated it between the myopathic (muscular dystrophies) and the myelo-pathic (anterior poliomyelitis) affections.

The characteristics of the affection as originally described by Charcot and Marie are:

1. Progressive muscular atrophy beginning first in the feet and legs, not appearing in the hands and arms until several years later, the progression of the atrophy being slow.
2. Relative integrity of the muscles near the trunk, or at least much longer preservation of these than of the muscles of the distal ends of the limbs.
3. Integrity of muscles of the trunk, shoulders and face.
4. Fibrillary contractions in the atrophying

muscles. 5. Vasomotor disturbances in the portions of the limbs which have atrophied. 6. Absence of pronounced contractions of the tendons. 7. Sensations usually intact but sometimes affected. 8. Reaction of degeneration in atrophying muscles. 9. Hereditary and familial tendencies.

The three cases reported here are members of a Jewish family which came to this country in 1899. The father, a well developed and nourished man, left his wife and children several years ago. Nothing is known of his family with the exception of one brother and his family, all of whom have always been well. The mother is living and well. There is no history of paralysis or other nervous disturbance in her family. The mother does not use alcohol. The father drank at times. There are three healthy sisters, aged 21, 13 and 8 years. All children were normal deliveries, healthy infants and walked before one year of age.

CASE 1. Plates I and II. Sam F., 24 years old, has always lived at home, never having been able to work.

Complaint: "Weakness of legs and arms."

Past History: Internal strabismus of the left eye was present at birth. He had measles at two years, chicken pox at three years and whooping cough at four years of age. Entropion of both lower lids began at 17 years with falling out of the lashes and chronic irritation since that time.

Present Illness: Began at the age of seven years when weakness was noted in his feet, making walking difficult. Weakness and atrophy increased until at the age of 14 years the muscles above the knees also seemed to be involved and he fell down constantly when walking about. At 16 years the patient was wholly unable to walk and moved about by crawling. At about this time the fingers of the left hand and almost immediately of the right became weak with

* Reported at a medical meeting at the Peter Bent Brigham Hospital, November 10, 1914.

† Received for publication Dec. 22, 1914.



PLATE 1.

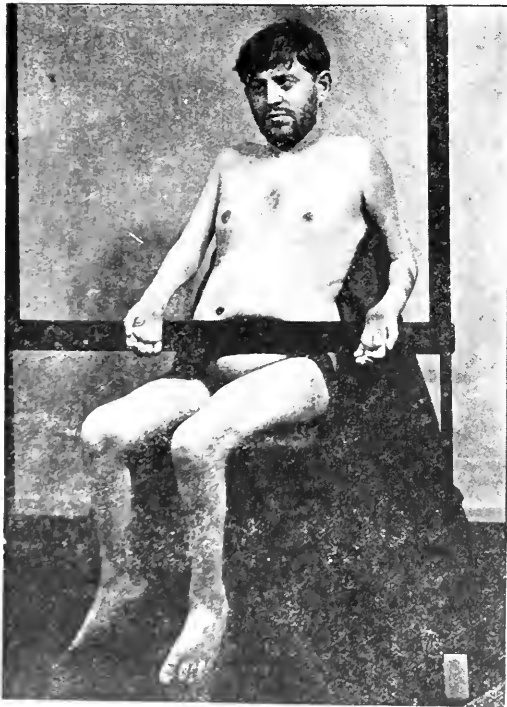


PLATE 2.

gradual development of contracture so that they could not be straightened. Subsequently the whole lower arm on both sides became involved so that at the age of 20 years he was unable to use either hand. At present there remains ability to move the third and fourth fingers of the right hand to a slight extent. No sensation of pain, cramp or discomfort has ever been felt. He sleeps well, has a good appetite and never becomes nervous or irritable. At

the present time he clumsily washes and dresses himself, using his hands in a flail-like manner but can perform no complex movements. His mentality appears normal.

Physical Examination: Shows head and body, including the shoulders and buttocks, well developed and nourished. Skin and mucous membranes are normal. Eyes show entropion of both lower lids with a low grade chronic conjunctivitis and a left internal strabismus. Pupils react equally to light. Tongue is clear and protrudes without tremor. Chest is well formed, expansion good. Lungs and heart are normal. Systolic blood pressure is 120 mm. of mercury. Abdomen is fat and somewhat protuberant, no masses or tender areas are made out. Patient sits or lies with both knees flexed at right angles to the thighs from contracture. There is evident equino-varus of both feet, most marked on the right, also a marked degree of external rotation of the whole lower right leg from atrophy and weakness of the vastus medialis. The legs are short as compared with the body, giving the patient a dwarfish appearance. Atrophy of all muscles of the legs below the middle third of the thigh is evident but to some extent obscured by the thick layer of subcutaneous fat. The hands and arms show a marked degree of atrophy and paralysis below the middle third of the upper arm, comparable with that of the feet and legs. The thenar and hypothenar eminences of both hands are absent. The hands are flattened with the terminal phalanges slightly flexed. The biceps on the right is capable of flexing the arm. The left biceps cannot accomplish this. There is practically no muscular movement below the elbows. On the left there seems to be slight weakness of the shoulder muscles. The hands and feet are about two-thirds normal size and length. The knee jerks, Achilles jerks, plantar, biceps and triceps reflexes of both sides are absent. There is no ankle clonus or Babinski sign. The cremasteric and abdominal reflexes are present.

While the patient was in the hospital fibrillary tremor at a rate of about 8 per second was noticed in his pectoral, biceps and triceps muscles, especially on the left, brought on by any attempt to move the arm. A tracing was made, by connecting the arm by electrodes with the electrocardiograph galvanometer (Plate III), and by means of an air-containing cuff around the arm connected with a recording tambour (Plate IV). These plates show graphically the electric disturbance set up by the fibrillary twitching of the muscle and the rate and degree of muscle contraction. The muscle sounds during the

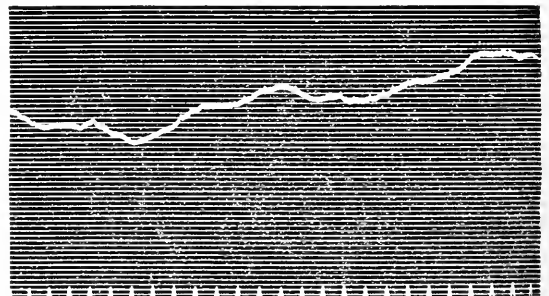


PLATE 3.

Tracings were obtained by placing the electrodes on the outer side of the left upper arm, one at the upper part and the other at the lower part of the triceps. There are fine movements of the string produced probably by muscular twitchings which result when patient tries to move his fingers.

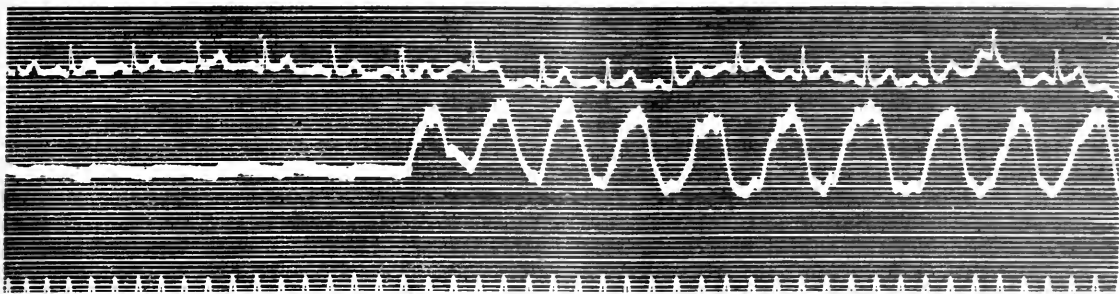


PLATE 4.

Upper curve is electrocardiogram showing normal cardiac complex. Middle curve is record obtained from a recording tambour connected with an air cuff around upper arm. First portion of the curve shows low waves produced by pulsation of brachial artery; second portion shows large and small waves produced by twitching of arm muscles. Lower curve is record of a time bar of beating one-fifth seconds.



PLATE 5.



PLATE 6.

period of tremor could readily be heard with a stethoscope. There was a similar tremor noticed in the muscles of the upper left cheek and those of the lower left lid which probably originated in the orbicularis palpebrarum. The location of these muscles was not suitable to obtain graphic tracings.

CASE 2. Plates V and VI. Harry F., 12 years old.

Complaint: "Cannot walk."

Past History: No previous illness. Digestion good. Bowels regular.

Present Illness: Began at age of seven years when he noticed that the right foot became weak and easily tired when walking. The same difficulty was encountered in the left foot about four weeks

later. The legs and feet have grown progressively weaker with marked atrophy of all muscles below the knees and six months ago he finally became unable to walk at all. About four years ago he noticed weakness followed by incoordination in his hands, appearing in the first and second fingers of the right hand. Atrophy and paralysis have progressed until at present there is no muscular control below the insertion of the biceps. His mentality appears normal.

Physical Examination: Shows a normal appearing boy of 12 years, well developed and nourished except in the musculature of the arms and legs. Pupils are equal and react to light. Tongue is protruded in the mid line without tremor. Skin and mucous membranes are normal. Chest is well

formed, expansion good. Lungs and heart are normal. Systolic blood pressure is 120 mm. of mercury. Abdomen is fat and slightly protuberant, no masses or tender areas are made out. Upper extremities show a progressive tapering from the shoulders to the hands which are held in a position of pronation, flexed at the wrists. The lower arm muscles, interossei muscles, thenar and hypothenar eminences show marked atrophy. The biceps and triceps reflexes are absent. Movements of the lower arms and hands are accomplished by flinging movements of the shoulder muscles. The lower extremities show the same type of progressive tapering. The right knee is held in position of genu valgus. Both feet show equino-varus which is especially marked on the left. The feet and hands are smaller than those of the average boy of his age and size. The atrophy of the lower legs and feet is even more obscured by the thick layer of subcutaneous fat than in the arms and hands. All muscle power below the knees is gone. The knee jerks and plantar reflexes are absent. There is no ankle clonus or Babinski sign. No muscular tremor was observed.



PLATE 7.

CASE 3. Plates VII and VIII. Mary F., 10 years old.

Complaint: "Unable to use hands or feet."

Past History: Measles at four years followed immediately by whooping cough which persisted for six months.

Present Illness: Began at age of four years about one or two months after the whooping cough, when mother noticed that the child walked peculiarly, picking up feet higher than usual and bringing them down "flail-like." The weakness in her legs gradually increased until she is now barely able to walk. The weakness was first noticed in her hands about two years ago, at which time she could perform any complicated task, but paralysis and at-

rophy gradually progressed until now she is practically helpless, being able only to feed and dress herself with difficulty. The weakness and atrophy remain localized to the lower portions of the extremities. Her mentality is normal.

Physical Examination: Patient is well developed and nourished except in the musculature of the



PLATE 8.

lower arms and legs. Pupils are equal and react to light. Teeth are in poor condition. Tongue protrudes in the mid line without tremor. Skin and mucous membranes are normal. Chest is well formed, expansion good. Lungs and heart are normal. Systolic blood pressure is 115 mm. of mercury. Abdomen is soft and rounded, no masses or tender areas are made out. The upper extremities appear normal as far down as the elbows. Flexion at the elbows seems weak but not limited. The muscles of the lower arms and hands show marked atrophy; especially noticeable is the absence of the thenar and hypothenar eminences. There is some contracture of the second, third and fourth fingers of both hands in the two distal phalangeal joints, giving the picture of an early "claw hand." Reflexes of the biceps and triceps are transient. No reflexes are present in the lower arms. The lower extremities show marked atrophy and practically complete paralysis of the muscles below the knees. The degree of atrophy is masked by thick subcutaneous fat. Both feet show equino-varus, more marked on the right. Knee jerks, Achilles jerks, and plantar reflexes are absent. No ankle or Babinski sign.

The electrocardiograms in all three cases showed the heart mechanism to be perfectly regular and normal.

The special senses, smell, sight, hearing, taste and speech as well as the general sensations of

pain, touch, position and temperature, were normal in all cases without exception. There is a well marked vaso-motor disturbance in the involved portions of the extremities in that their appearance is cyanotic and they feel cold as compared with the uninvolved portions.

Ophthalmoscopic examination showed normal fundi with the discs clearly outlined and vessels well seen throughout their course.

X-ray examination of the affected parts show evident bony atrophy, more or less failure of development of the sesamoid bones, shafts of long bones with small flaring extremities and some failure of the epiphyses to unite. In all three cases the sella turcica was small, antero-posterior diameter 10 mm., depth 6 mm.

The electrical reactions of the muscles in all three cases were very similar, varying directly with extent of the disease. The reaction of degeneration was found in muscles more recently involved (*i. e.* those about the knees and elbows). No reactions to electrical stimuli were obtained on muscles of the lower portions of the extremities in any case (*i. e.*, hands and feet). Partial reaction of degeneration was obtained in many muscle groups that appeared to be unimpaired. The muscles giving these partial reactions of degeneration were located above the atrophic muscles. This was most evident in the case of the elder boy where only very large amounts of faradic current (60-70 mil. amperes) gave muscle response in the deltoids and pectorals of the left side, while relatively small amounts of galvanic current (15-20 mil. amperes) gave similar response in normal individuals.

The clinical pathology of the urine and blood in all three cases showed normal conditions. The Wassermann reactions on the blood serum and spinal fluid in each case were negative. The spinal fluids, were, however, very interesting as shown by the following table. The coincident increase of albumin and globulin with the stage of the disease in the three cases seems a logical finding, as well as the pathological gold chloride reaction. I have not found these tests previously reported. The gold chloride reaction, as indicated by the number of the tube with the strength of reaction following, is one that simulates the cerebro-spinal syphilitic reactions, falling nearest to tabes.

The cases of this type, with atrophy confined strictly to the distal parts of the limbs, are recognized as a distinct type of neuro-muscular atrophy, with a distinct pathology. Cases of this kind with necropsy are very rare and we are obliged to depend on the findings of Marineseo³, Sainton⁴, and Dejerine and Armand-Delille⁵.

The lesions of the cases studied by Sainton were: sclerosis of the posterior columns, especially the columns of Burdach, a slight degeneration of both pyramidal tracts, alterations of the columns of Clarke, atrophy of the cells of the anterior horns, slight degeneration of the intra-muscular nerves, slight sclerosis of the nerves of

	Cells per c. m.					Albumin					Globulin			
	1	2	3	4		1	2	3	4		1	2	3	4
Tube	1	2	3		1	2	3	4		1	2	3	4
Mary F.	+	+	+		+	+	+	+		+	+	+	+
Harry F.	—	—	—		—	—	—	—		—	—	—	—
Sam F.	—	—	—		—	—	—	—		—	—	—	—

SPINAL FLUID.

Gold Chloride Reaction.

the forearms and legs very distinct in the peroneal nerves, atrophy of the muscle fibres even causing complete disappearance of some fibres with proliferation of connective tissue. In this case the atrophy began in the upper limbs. The lesions resembled those observed by Marineseo in his case, except that Marineseo found the antero-lateral columns intact.

The lesions in the case reported by Dejerine and Armand-Delille were degeneration of some of the nerve cells of the anterior horns of the cervical and lumbar regions without diminution in their number, chronic meningitis, degeneration of the muscles of the hands and feet (*i. e.*, many nerve fibres of small size, many empty nerve sheaths and a few nerve fibres in the process of degeneration). The nerve trunks, the cutaneous sensory nerves and the anterior and posterior nerve roots with slight exception were normal.

Siemerlings⁶ case is held in question as belonging to this type, as there was great atrophy of the muscles of all the extremities, the upper

limbs as well as the lower, and of the trunk. There was flaccid complete paralysis of the lower limbs so that all voluntary movements were lost. He found degeneration of the posterior and lateral columns, most intense in the lower thoracic and upper lumbar regions, degeneration of the peripheral nerves and muscles, atrophy of the cells of the anterior horns, of the columns of Clarke, of the anterior roots and of the spinal ganglia.

In the original description the type was so sharply defined that confusion with other types was supposed not to occur, but literature contains many reported cases in which some atypical features are present. Sachs⁷ reported the first two cases from this country which deviated from the original type in that the infraspinati muscles were atrophied. Oppenheim and Cassirier⁸ reported a case with involvement of the orbicularis palpebrarum. My first case is somewhat atypical in that the pectorals are weak and show the typical fibrillary contractions of early muscular atrophy and neural degeneration; otherwise the cases are absolutely typical clinical pictures of the original type descriptions and their classification cannot be questioned.

That the disease is a hereditary as well as a familial affection is well shown in the family reported by Dr. Herringham⁹. In his case, however, extending over three generations, males only were affected, though the disease was transmitted by females, following closely the hereditary features noticed in color blindness. In the family reported by Osler¹⁰ thirteen individuals were affected in two generations, seven being males and six females. Both males and females transmitted the disease. This is by far the most common. Males are affected more frequently than the females in the proportion of two to one. (Some say five to one).

Concerning the prognosis it may be said to be good so far as life is concerned; the disease is of slow development and after reaching its height the patient may live for years without having additional symptoms. Thus in a typical case reported by Spiller¹¹, symptoms are said to have been present 45 years, and the patient's condition has not changed during the many years he has been under observation. There is no reason for expecting any tendency toward improvement.

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ON THE VALUE OF THE GOLD SOL TEST (LANGE) IN CEREBROSPINAL FLUID OBTAINED POST-MORTEM.*

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In the examination of cerebrospinal fluid post-mortem the Wassermann reaction is unreliable according to the consensus of opinion. Nor is the post-mortem cell count of great value. There remains the Gold Sol Test of Lange, which, if reliable, with post-mortem fluids would offer much in the way of differential diagnosis of syphilitic and other conditions of the nervous system. At the same time it would give an excellent opportunity to compare the reaction obtained with the existing pathological condition.

(It may be stated here that the test is performed by the addition of a preparation of colloidal gold to ten dilutions of spinal fluid, ranging from 1/10 to 1/5120, and the results read according to the change in color ensuing. Where no change occurs the reaction is called negative and recorded as 0. The color changes, depending on the amount of gold precipitated, are recorded as 1, 2, 3, 4, 5, the latter being clear, due to all the gold being flaked out.)

In the clinical application of the gold sol test it has been shown that different inflammatory processes of the central nervous system give reactions differing in the amount of color change and in the dilutions in which the color change occurs depending on type of condition existing. Thus syphilitic disease of the central nervous system characteristically gives a reaction in the first five dilutions, tuberculous meningitis, as a rule, tends to react in the middle dilutions, while the meningitides of pyogenic origin often show the reactions in the high dilutions. Further, general paresis usually gives a characteristic reaction differing from that of cerebrospinal syphilis or tabes. The table on opposite page illustrates typical reactions.

In summing up the experiences with this test in the laboratory of the Psychopathic Hospital (previous contribution)¹ the following conclusions were offered: "(1) Paresis gives very typical reactions, but cases of undoubted paresis may give atypical reactions and cases not paresis may give the type reaction. (2) We are unable

* Being Contributions of the State Board of Insanity, Number 39 (1915.5). This communication was presented at a meeting of the Boston Society of Medical Sciences, January, 1915. This work was made possible through the courtesy of the Pathological Service of the Massachusetts State Board of Insanity, to whom our sincere thanks are given. (*Bibliographic Note.*—The previous contribution was Number 38 (1915.4), by E. E. Southard, entitled, "A Comparison of the Mental Symptoms Found in Cases of General Paresis With and Without Coarse Brain Atrophy," accepted for publication in the *Journal of Nervous and Mental Disease*.)

1	1	1	1	1	1	1	1	1
10	20	40	80	160	320	640	1280	2560
5	5	5	5	5	5	4	3	1
0	1	3	3	1	0	0	0	0
0	0	0	0	1	2	3	3	2

to offer any conclusions as to its value in the differentiation of cerebrospinal syphilis and paresis. (3) Tabes gives a reaction quite different from paresis, fairly characteristic of syphilis but not in itself diagnostic of tabes. (4) It is of no certain value in cases of congenital syphilis showing no other signs of central nervous system involvement. (5) Non-syphilitic cases give at times reactions in the so-called syphilitic zone (the first five dilutions). (1) In view of the above statement it can be maintained that a reaction in the syphilitic zone in cases of syphilitics does not necessarily argue syphilitic involvement of the central nervous system, all other signs being negative. (7) It would seem to offer a differentiation of tuberculous meningitis and is here at times more valuable than any other test."

These conclusions drawn from a series of 135 cases, as those by others who have reported their results, have depended in large measure on the accuracy of clinical diagnosis. It is evident that in any empirical test such as the gold sol, the final evaluation must depend on post-mortem confirmation.

In order to determine the significance of its results of this test with post-mortem fluids we tested the spinal fluids obtained post-mortem from the lumbar region in a series of twenty-six cases. These results we have analysed, comparing them with ante-mortem results and interpretations as indicated in the above summary. For analysis the cases of this series may be divided into five groups:

Group 1. In which the gold sol test was performed, both ante- and post-mortem.

Group 2. Cases of general paresis.

Group 3. Cases giving a negative reaction.

Group 4. A case other than general paresis giving the typical "paretic reaction."

Group 5. The remaining cases giving positive reactions of various sorts.

Group 1. Six cases tested both ante and post mortem. S. B. I. 1914, 58, 66, 71, 74, 79, and S. B. I. 1915, 2.

[illegible]

Of these six cases, the first two, representing general paresis and multiple sclerosis respectively, showed the same result with the gold sol test, ante- and post-mortem. The third, a case of cerebrospinal syphilis (post-mortem diagnosis) gives a very slight reaction in different dilutions before and after death. Such a light reaction is practically negligible from the clinical standpoint. The symptoms in this case were only of a few weeks' duration and the patient died in a convulsion; that is, we may consider a rapid change to have taken place in the central nervous system. This case is especially noteworthy in showing the value of the gold sol test

in the differentiation of paresis and cerebrospinal syphilis. There were marked mental symptoms resembling catatonic dementia precox. The Wassermann reaction in serum and fluid was positive; there were 109 cells per cubic mm. in the spinal fluid; the pupils were sluggish. In other words the picture clinically and serologically was that of general paresis. The gold sol test on the contrary was very different from the typical paretic reaction. Post-mortem examination showed the case to be cerebrospinal syphilis (Alzheimer criteria). This is the only case we know of in which the diagnosis of cerebrospinal syphilis has been confirmed post-mortem and in which a gold sol test has been performed.

The fourth case, in which there was a large infiltrating glioma of the brain, gives quite different results before and after death; but in this instance fluids withdrawn before death with an interval of three weeks also gave very different reactions. This change in reaction is occasionally seen in fluids drawn at intervals before death and has seemed to us to indicate that an active process is going on. So we are not surprised to find such a difference from a previous ante-mortem result occurring in a fluid obtained after death when there has been a period of time intervening.

The fifth case is one shown histopathologically to be general paresis; yet ante-mortem the gold sol test had not been typical (the color change of less than the usual intensity). The post-mortem gold sol result appears quite different from the ante-mortem or the paretic reaction, and resembles rather the reaction described as suggestive of cerebrospinal syphilis. As one watches the development of color changes in paretic fluids, it will be found, as a rule, that the color changes start in the fourth or fifth tubes; after an interval of a half-hour to an hour one will often find the reaction such as here given post-mortem, in this case at the end of the observation; while later at the time the test is read, i.e. at the end of twelve hours, the changes have gone on to characteristic paretic reactions. In other words such a reaction as here observed would correspond to an incomplete paretic reaction. The case in question was a rapidly fatal one, with the entire duration of symptoms less than three months; in other words a rapidly progressing process with very probably corresponding changes in the fluid.

The last case is one in which the diagnosis was Korsakow's polyneuritic psychosis. Myerson² has offered evidence to show that in this condition there is a change in the albumin content of the spinal fluid from the normal, and that the amount at least of the albumin varies during the progress of the disease.

It seems to us that these cases indicate that fluids obtained after death have undergone no change as far as their reactions with the colloidal gold are concerned, from their conditions immediately ante-mortem.

Group 2. *Seven cases of general paresis.*
S. B. I. 1914. 58, 75, 87, 88, 79, S. B. I. 1915.1
and B. S. H. 1914.31.

	S. B. I., 1914, 58.	S. B. I., 1914, 75.	S. B. I., 1914, 87.	S. B. I., 1915, 1.	B. S. H., 1914, 31.	S. B. I., 1914, 88.	S. B. I., 1914, 79.
1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1
3	1	1	1	1	1	1	1
4	1	1	1	1	1	1	1
5	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1
11	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1
13	1	1	1	1	1	1	1
14	1	1	1	1	1	1	1
15	1	1	1	1	1	1	1
16	1	1	1	1	1	1	1
17	1	1	1	1	1	1	1
18	1	1	1	1	1	1	1
19	1	1	1	1	1	1	1
20	1	1	1	1	1	1	1
21	1	1	1	1	1	1	1
22	1	1	1	1	1	1	1
23	1	1	1	1	1	1	1
24	1	1	1	1	1	1	1
25	1	1	1	1	1	1	1
26	1	1	1	1	1	1	1
27	1	1	1	1	1	1	1
28	1	1	1	1	1	1	1
29	1	1	1	1	1	1	1
30	1	1	1	1	1	1	1
31	1	1	1	1	1	1	1
32	1	1	1	1	1	1	1
33	1	1	1	1	1	1	1
34	1	1	1	1	1	1	1
35	1	1	1	1	1	1	1
36	1	1	1	1	1	1	1
37	1	1	1	1	1	1	1
38	1	1	1	1	1	1	1
39	1	1	1	1	1	1	1
40	1	1	1	1	1	1	1
41	1	1	1	1	1	1	1
42	1	1	1	1	1	1	1
43	1	1	1	1	1	1	1
44	1	1	1	1	1	1	1
45	1	1	1	1	1	1	1
46	1	1	1	1	1	1	1
47	1	1	1	1	1	1	1
48	1	1	1	1	1	1	1
49	1	1	1	1	1	1	1
50	1	1	1	1	1	1	1
51	1	1	1	1	1	1	1
52	1	1	1	1	1	1	1
53	1	1	1	1	1	1	1
54	1	1	1	1	1	1	1
55	1	1	1	1	1	1	1
56	1	1	1	1	1	1	1
57	1	1	1	1	1	1	1
58	1	1	1	1	1	1	1
59	1	1	1	1	1	1	1
60	1	1	1	1	1	1	1
61	1	1	1	1	1	1	1
62	1	1	1	1	1	1	1
63	1	1	1	1	1	1	1
64	1	1	1	1	1	1	1
65	1	1	1	1	1	1	1
66	1	1	1	1	1	1	1
67	1	1	1	1	1	1	1
68	1	1	1	1	1	1	1
69	1	1	1	1	1	1	1
70	1	1	1	1	1	1	1
71	1	1	1	1	1	1	1
72	1	1	1	1	1	1	1
73	1	1	1	1	1	1	1
74	1	1	1	1	1	1	1
75	1	1	1	1	1	1	1
76	1	1	1	1	1	1	1
77	1	1	1	1	1	1	1
78	1	1	1	1	1	1	1
79	1	1	1	1	1	1	1
80	1	1	1	1	1	1	1
81	1	1	1	1	1	1	1
82	1	1	1	1	1	1	1
83	1	1	1	1	1	1	1
84	1	1	1	1	1	1	1
85	1	1	1	1	1	1	1
86	1	1	1	1	1	1	1
87	1	1	1	1	1	1	1
88	1	1	1	1	1	1	1
89	1	1	1	1	1	1	1
90	1	1	1	1	1	1	1
91	1	1	1	1	1	1	1
92	1	1	1	1	1	1	1
93	1	1	1	1	1	1	1
94	1	1	1	1	1	1	1
95	1	1	1	1	1	1	1
96	1	1	1	1	1	1	1
97	1	1	1	1	1	1	1
98	1	1	1	1	1	1	1
99	1	1	1	1	1	1	1
100	1	1	1	1	1	1	1

Of these seven cases of general paresis the first four give typical "paretic reactions," while the remaining three give reactions which are not typical. Analysis of these three cases throws some light on the possible reasons for the deviation from the rule. The brain and various viscera from B. S. H. 1914.31 showed marked autolytic changes. Histologically there was a slight cerebral meningitis, the vessels were distended, particularly those in the cerebral white matter, and contained many polar staining bacilli. These were probably post-mortem invaders. There was some perivascular infiltration. This body was not kept under the best of conditions and was autopsied eight days post mortem. It seems probable that the autolysis led to the production of albuminous material not normally found. It suggests the problem of observing the changes in reaction of the fluid with the colloidal gold that may occur in autolytic and other lytic changes of the nervous system.

The second giving atypical results for paresis, S. B. I. 1914.88, was complicated with pulmonary gangrene. Whether this had any bearing on the results we are not prepared to say. S. B. I. 1914.79, as pointed out in the discussion under the preceding group, although an undoubted case of general paresis as confirmed histopathologically, failed to give a paretic gold sol reaction ante, as well as post mortem. This case tends to support the clinical observations as

mortem spinal fluid and when the body is well preserved or the fluid obtained early, the results are the same as would have been obtained just prior to death.

6. The gold sol test has the same value in the examination of cerebrospinal fluid obtained post mortem from the lumbar region as ante mortem, and the results may be similarly interpreted for diagnostic purposes.

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ENCHONDROMA.

A REVIEW OF THE LITERATURE OF THIS SUBJECT WITH REPORT OF THREE CASES OPERATED UPON BY THE AUTHOR.

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IN a review of the literature of this subject one is struck with the great diversity of opinion, and theories as regards etiology. Also, the difficulties of diagnosis and the many opinions regarding the conservative and radical treatment and prognosis are confusing. Necessarily treatment depends to a great extent on a number of conditions, and particularly upon whether the surgeon is a conservative or a radical man. In the older works on this subject the great preponderance of opinion leans to the view that this is a strictly benign growth, and up to the present time only a few men consider it more or less malignant in character.

Some writers state that a preponderance of osseous tissue makes it benign and gives it the character of an osteoma or exostosis, while others claim the presence of osteoid tissue makes it a malignant type. As regards the etiology of these tumors Virchow, Ziegler, Stengel, and others feel that they spring from remnants or islands of cartilage left in abnormal situations as the result of imperfect fetal development, and especially at the epiphyseal portion of the bone. They feel that rickets is a predisposing factor to the condition.

The three cases about to be described by the author were near joints, and the greater number of the cases looked up all occurred near the joints or at the epiphysis of long bones. Therefore, from this review one would be warranted in feeling that from a clinical viewpoint, at least, this was the most plausible theory.

Whether or not the tumor arises from the periosteum is still a question. Then, again, whether the hard cortex sometimes found is really a part of the tumor or whether it is simply an over-stimulated periosteum is a question.

These tumors are rarely pure cartilage, and even the small ones often show deposits of lime salts, which are easily seen at the time of operation, and they usually show, also, marked disintegration. As to the question of trauma being a factor in causing these growths, one can believe that it might possibly be an exciting cause, as in Case 2, described in this article. Von Recklinghausen has attributed the disturbance in bone formation, which gives rise to such growths, to imperfect development of the blood vessels with faulty nutrition, as the result of an imperfect vascular supply. Koch believes that cysts, which occur from time to time in long bones, frequently arise in enchondromata. Bloodgood states single and multiple central enchondromata are very rare, but undoubted examples have been reported.

Patients with these conditions almost always complain of swelling, and of inconvenience in motion, and not of pain, unless there is direct impingement on a nerve. However, as in Case 1, a very small nodule might occur very near a nerve, causing considerable pain. To make a definite diagnosis of enchondroma clinically is not always a simple task. We know that tumors developing in a young patient, and situated near the epiphysis are most likely either enchondroma or sarcoma. Sarcoma will usually give more clinical symptoms of a malignant growth; symptoms which are well known and definite when present. These growths are also much more rapid in their growth than enchondromata, therefore it seems that the clinical course of the growth would be rather an important factor in diagnosis. Enchondroma is, without doubt, of a very slow and insidious growth, and only when it interferes mechanically, or is large enough to be observed as a distinct tumor, are patients conscious of it. The general health is not impaired and subjective symptoms are absent.

It would seem that with the x-ray we have a fairly accurate adjunct in diagnosis. Cases 1 and 2 were diagnosed by Dr. Walter Dodd as enchondromata, and subsequent pathological examination, after removal, proved them to be such.

Dr. E. W. H. Shenton, of Guy's Hospital, states in a report that the radiograph easily distinguishes the tumor. He feels that one very important point is the very regular outline that we observe in these conditions, as compared with the irregular and ragged way that ossification takes place in malignant conditions.

The line between a benign and malignant tumor is not always a sharp, well-defined one. It would seem that the two classes are not distinct, but rather differ in degree. An apparently benign tumor may show characteristics gradually changing to malignant.

The fact that distinct enchondromata do recur after operations is no indication that the diagnosis is wrong. It seems to the writer that the two factors may enter into this condition. One is, as Bloodgood states, "An incomplete removal of benign tissue, with the exception of angioma, is always followed by re-formation of a tumor from residue left behind, and the chance of malignant change in the residue is greater than in the undisturbed benign lesion." The other condition is that which might be called a recurrence, but which may be due to a very small nodule overlooked at the time of examination. The writer feels that this was the fact in Case 1, where a small overlooked nodule grew, rather than a recurrence of the tumor took place after primary removal. As can be seen by the x-ray, it is only by extreme rotation of the arm in this case, that this small nodule situated in the musculo-spiral groove could be made out.

Treatment. All surgeons, of course, will readily agree that a radical removal is indicated. What to do with a border-line case is, of course, difficult to decide, but it would seem, when practicable, the patient should always be given the benefit of a conservative operation. In estimating whether or not the conservative treatment gives the desired result, we must, of course, see the difficulty of drawing conclusions from the results of a large number of surgeons, of varied technic and training, in this particular branch of surgery. It must be conceded that the surgeon most used to bone work is best able to cope with this condition.

In operations on this condition, the gross pathology gives a picture in experienced hands that leaves little doubt usually as to its diagnosis.

All surgeons know that very often the clinical picture of a condition does not coincide with the pathological picture. For instance, all orthopedic surgeons know, that they find knee joints which at time of arthrotomy show clinically a tuberculous lesion, but pathologically they give no indication of such a condition. These knees are followed, and later they come to excision, leaving no doubt as to their being typical tubercular knees, both by their clinical course and condition at time of excision. The writer believes that more and more, orthopedic surgeons are depending for diagnosis, in many of the bone lesions, on what their clinical experience teaches them.

In consideration of the above, and as Bloodgood further states, "In bone lesions the mutilation of amputation is so great and chances of a cure of any doubtful lesion, should it prove malignant, are so slight that the most conservative operation should be done."

The writer feels that the conservative operation is indicated in the great majority of cases.

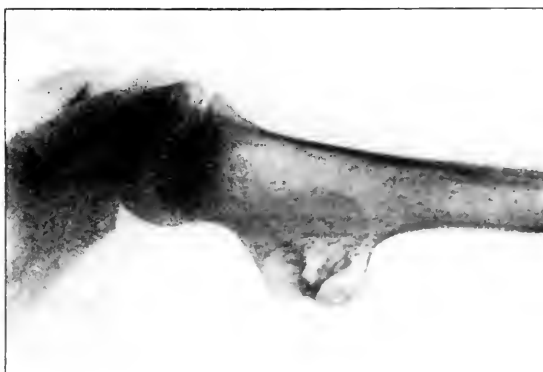
Virchow reports a case of enchondroma of the scapula, where the tumor was removed seven times, and the patient finally recovered. We must concede that the patient was far better off after seven conservative operations, still pos-

sessing his arm, than after the extensive radical operation of amputation. The author believes that the majority of surgeons are too quick to assume a recurrence of an operated tumor, as indicating malignancy. A simple recurrence in absence of other symptoms, as Virchow has shown, can do no particular harm, and conservative surgery is indicated. The loss of a limb means much to any individual, and the surgeon should be very judicious in his decision, in operating in these conditions. The majority of the cases when not too large, can easily be reached. The skin incision should be generous, and one will find that by very careful separation of the muscle fibres and rotation of the limb, the mass is readily reached without cross-cutting important structures.

Some authors have advanced the theory that these tumors start from the periosteum; the writer has a different opinion from some operators. A few surgeons state that the enveloping capsule can be opened and the enchondroma shelled out. The author cuts down when practicable, frees all the muscular attachments, does not open the capsule, cuts around the entire base of the growth, removing capsule and all. Some of these are very dense, and in order to be removed in toto, a sharp chisel and mallet are necessary. The base is then scraped with a very sharp bone curette and the whole cleaned thoroughly with 95% carbolic, followed by alcohol. The whole is covered as well as can be with fascia, then if the separation of the muscles has been done carefully, the fibres readily come together, and are held in place by chromic catgut and the skin closed with silkworm gut.

CASE 1. *Family History.* Negative. Age 11 years.

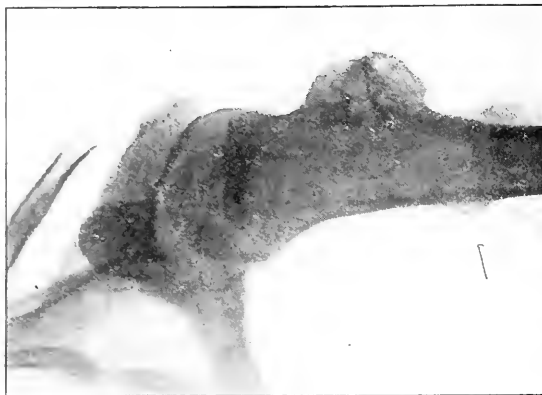
Past History. Child has always been well excepting tumor growth in the outer side of the right



CASE 1. PLATE 1.

Roentgen examination of right humerus. Plate reveals a tumor on the outer and posterior surface of humerus about one inch from the epiphyseal line. Roentgen diagnosis: Enchondroma. Dr. Wm. Dodd.

upper end of the humerus. Seen by the writer in consultation 20 months ago. Two years previous noticed a swelling of the right shoulder in about the middle of the deltoid muscle. Was seen by an eminent surgeon, who operated, and removed the growth; had been well for a period of 1½ years.



CASE 1.—PLATE 2.

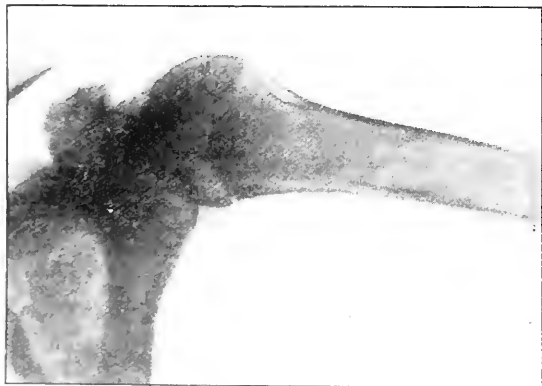
Arm in marked rotation showing second lesion on inner aspect of humerus. This plate illustrates the importance of taking all such cases in various positions. Arrow points to small nodule.

Dr. Wm. Dodd



CASE 1.—PLATE 3.

Dr. Wm. Dodd.



CASE 1.—PLATE 4.

Same case taken by me twenty months after operation with arm in same relative position as two pictures of same case. It shows no pathological or abnormal condition.

Dr. Wm. Dodd.

when the swelling was again noticed, and thought to be at about the same location.

Physical Examination. At time patient was seen by the writer a large rounded mass, about the size of a case egg, was felt at about the region of the centre of the deltoid muscle. Small nodule also felt in the course of the musculo-spiral nerve; incision about four inches long had been made in the ex-

ternal posterior aspect of the arm. Case had been seen at one of the large institutions and had been advised to have arm amputated at the shoulder. Patient then seen by the writer, who advised x-ray and conservative operation for removal of the tumor.

Operation. Incision six inches long, beginning at the tip of the shoulder, made in the skin, fascia cut and the fibres of the deltoid muscle, at its upper portion, separated down to the tumor mass. The arm having been rotated outwardly, the base of the tumor was cut into with chisel; the arm then rotated inwardly, forcibly, the under border of the tumor was cut into in a similar way. The tumor was removed and base curetted and only a thin shell of good bone left. In order to reach the smaller tumor on the musculo-spiral groove, the arm was forcibly rotated inward, a careful dissection made between the external head of the triceps and the outer border of the deltoid, down to the nerve. The nerve located, held away by blunt dissector, and the small tumor, on the edge of the groove, easily made out, carefully recovered by very sharp curette. The parts replaced and the arm outwardly rotated. The base of the large tumor was then carefully covered with fascia, muscle fibres brought together with catgut and the skin closed with silkworm gut.

Uneventful recovery in ten days.

Pathological Report. Tumor shows a fibrous capsule, beneath which is a thick layer of relatively acellular cartilage. The cells become more and more abundant as the bone is neared, until at the edge of the bone, they can be seen in many places arranged in rows at right angles to bone, with in places masses of acellular material between them, in places, small finger-like processes of vascular tissue, in places along the drawing edge between the new formed bone, trabeculae. The marrow has been replaced by delicate connective tissue. Along the edge of the bone the whole suggests enchondromal bone formation. Diagnosis, enchondroma.

Rontgen Report. Two plates taken. One in abduction internal rotation, and the other in abduction, external rotation. About two inches from the articular surface of the right humerus, and on the inner side and posterior aspect, there is seen a distinct tumor. The appearance of this tumor would lead one to believe that it was of cartilaginous origin, as there are marked areas of increased density and others where the density is much less. This is probably an enchondroma. There is no evidence of periosteal sarcoma and it does not look, in any way, like a giant cell sarcoma. Diagnosis, probably enchondroma. Dr. Walter Dodd.

One year and eight months after operation, physical examination shows no palpable enlargements in region of previous growths; no pain, no disability whatever, patient constantly putting on weight, physical condition excellent.

As can be seen in x-ray the humerus shows no sign of operation but looks like a perfectly normal humerus.

CASE 2. P. A. Age 24. F. H. Negative.

Past History. At age of 16 noticed a lump at the outer and lower end of the femur. Noticed three weeks after playing football; x-ray in 1906, one year after injury showed a small cartilaginous outgrowth about the size of a walnut. Operation advised but refused. Tumor gradually grew larger, pained only after sitting down awhile in a cramped position.

Physical Examination. Fairly well developed

and nourished young man, a rather large, firm swelling felt about one inch external to the outer border of the patella; on motion of the lower leg definite snapping could be felt, no tenderness, operation advised.

Operation. Jan. 15, 1914. An incision about six inches long at antero-external aspect of the lower third of the thigh, and careful separation made down to the tumor mass. The tumor, as can be seen by x-ray, started from a small base, branched up-



CASE 2.—PLATE 1.

Internal lateral view shows a tumor somewhat anterior to the shaft. The character of the shadow indicates that it is made up of cartilaginous areas as well as areas of true bone. This plate shows the pedicle from which the tumor springs.

Dr. W. Dodd.



CASE 2.—PLATE 2.

Anterior view shows a tumor the base of which is one inch above the epiphyseal line, tumor is distinctly irregular and of irregular density. Roentgen diagnosis is enchondroma.

Dr. W. Dodd.

ward and outward. At the lower half of the tumor, the capsule of the knee joint seemed to be adherent; the tumor was therefore taken out in small sections by a Rongeur forceps and the capsule of the joint

carefully pushed forward, as portions of the tumor were removed. This was done in order that capsule of knee joint should not be opened unnecessarily. The entire base carefully curetted, swabbed out with 95% carbolic, followed by alcohol and muscles stitched up.

Discharged from the hospital in 10 days, wound healed. Weight bearing in three weeks, patient at present, twelve months after operation, states he never would have known he was operated upon, he feels so well, and all the former stiffness of the muscles that he had before operation had completely disappeared.

Pathological Report. Large, dense, bony and cartilaginous tissue from the femur measuring 4.5 x 4 x 3 C. M. Section disclosed large masses of cartilage, in which occur, in places, groups of young, closely packed cartilage cells. Elsewhere the cartilage exhibits necrosis, the cells either absent or showing only shadows of nuclei. The connective tissue received with specimen shows in places a high grade hyaline disintegration, the process not suggesting metaplasia of connective tissue into cartilage. Among the fragments occur masses of necrotic cartilage which have undergone autolysis. Diagnosis, Enchondroma of the Femur.

X-Ray Report. Case II, Plate 1. Anterior view shows a tumor the base of which is one inch above epiphyseal line, tumor mass is distinctly irregular and of irregular density. This tumor shows the distinct bony pedicle from which it springs. Plate II, Internal Lateral view shows same tumor and is somewhat anterior to shaft. Character of the shadow indicates that it is made up of cartilaginous areas as well as areas of true bone. Diagnosis Enchondroma. Dr. Walter Dodd.

CASE 3. Age 18.

Family History. Mother was in the Hospital five months ago for a goitre; father died of T.B. three years ago; history otherwise negative.

Present History. Has always been well.

Past Investigation. Five years ago, first noticed a lump on the inside of the arm, about the size of a marble. There was no pain at any time. The tumor grew steadily and upward, motion of the arm was limited more and more. The patient could not lift more than 50 pounds. On raising the arm there was no pain but there was a drawing sensation.

Physical Examination. Well developed and well nourished young man, rather apprehensive; no pain in motions of the arm; on palpation a tumor mass was readily felt in the axilla at upper end of the humerus.

Operation. An incision beginning at the tip of the coracoid process down along the inner border of the deltoid, to about the middle of the arm. A separation made between the two heads of the biceps, and dissection made down to the humerus; the whole arm rotated forcibly outward and the tumor readily presented itself. The tumor presented the usual smooth, shiny, cartilaginous appearance of these growths, was somewhat firmer than the usual enchondroma and readily removed. Contained areas of lime salts and necrosis. The tumor removed, base thoroughly curetted with 95% carbolic acid, followed by alcohol. The wound closed in the routine way. Patient discharged from the hospital in two weeks. At present, seven months from operation, has no inconvenience whatsoever. Pathological Diagnosis, Enchondroma.

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THE STUDY OF DISTURBANCES OF THE STOMACH.

By H. F. HEWES, M.D., BOSTON.

[From the Clinic of the Massachusetts General Hospital.]

(Concluded from page 373.)

Here we have a symptomatology which is suggestive of hyperacidity, either simple hyperacidity, or ulcer with hyperacidity, the symptom complex of duodenal ulcer. The finding, however, is typical of chronic gastritis and showed a low acidity. X-ray examination here was negative, an argument for the absence of any organic cause for the gastritis. The stomach in reacting to disturbance of any kind is apt to give similar symptoms in very different types of disease or disturbance. With this fact in mind, and a knowledge that the most aggravated stomach symptoms, worse than those often seen in even advanced cancer, may occur as part of a neurosis, or as secondary to gall bladder trouble, syphilis, acidosis or anaemia, we should go very slowly in making a positive diagnosis of any special type of a stomach disease from the record of symptoms alone. The conditions which most commonly give a history of symptoms suggestive of organic stomach disease, are gall bladder trouble, appendix trouble, adhesions from old appendix or surgical operation, syphilis and nerve conditions. Often these conditions can be distinguished from actual stomach disease by the physical examination. If not the tube examination or the x-ray examination should make the distinction in many cases. In some cases of these outside conditions, abnormal findings by special methods, as hypersecretion, by tube, or incisure, or abnormality in peristalsis by x-ray similar to the findings in ulcer or cancer may occur. This is especially the case with adhesions involving the stomach. Here there is cause for confusion,

but though we may thus be confused in a positive way even with the use of our special methods of research between ulcer or cancer and outside conditions as causes of stomach trouble, we should not be confused where these findings are negative. Organic stomach disease should show some sign besides the record of symptoms, blood or stasis or hypersecretion or an abnormal sediment, by tube or abnormal feces findings, or abnormality of some kind by x-ray, one or the other, and it is a safe plan not to make a positive diagnosis without some such sign or some other definite physical sign, as a tumor or an extreme anemia.

A class of cases which has given me much trouble in the past, is the condition of stomach disturbance associated with neuroses or nerve debility. Often the symptoms in such cases are very aggravated. We find often a long duration of symptoms, with much vomiting and much loss of weight. Here the apparent nerve character of the patient may help diagnosis, but a more important factor is the absence of positive signs by tube or x-ray.

The ptosis cases are another class of difficult cases. Here also we find a lack of positive physical signs save the ptosis signs, which discriminate them from conditions of organic trouble. There have been too many of these nerve cases and ptosis cases operated upon in the past through lack of proper investigation of the case, and a faulty diagnosis. I do not mean to say that ulcer and cancer of the stomach do not exist without giving positive objective signs of some sort. There is doubtless a stage in all cancer cases where no sign is present, but since a history of marked stomach trouble is so common in conditions other than organic stomach disease it is a good plan to keep the rule of not going too far in diagnosis of organic conditions without objective signs.

Another danger in stomach work already emphasized by me, is seen in the misleading character of x-ray findings which occurs fairly often. As a result of my experience up to the present I am very slow to make a positive diagnosis of organic stomach lesion, in many cases by an abnormal x-ray finding alone, that is, when the abnormal x-ray finding is the only abnormal objective finding.

There are cases where we are safe in going by an x-ray finding plus a history without other objective findings, as, for example, where a clear diverticulum is present, or where a nine-hour bismuth residue with absent sphincter is present, but there are, as stated, many abnormal x-ray findings which in some cases actually represent the effect of cancer or ulcer, which may be present with no stomach lesion, or with other conditions. I have seen too many cases operated upon the verdict of the x-ray alone, when good judgment based upon a study of the case by other methods in addition to the x-ray, might have changed the diagnosis. Here is a case in point:

CASE 18. J. McN. Age 70. Since extraction of teeth nine months ago the patient has been bothered with excessive watery expectoration. He fills a pint cup in two hours. Within this period he has had distress and burning in epigastrium, often actual pain coming at once after meals and lasting one-half to one hour. Pain often radiates to right back. No nausea or vomiting. Bowels constipated. Loss of 33 pounds of weight in five months. He has lived on liquid food for months owing to the condition of his mouth which makes it impossible to wear plates.

Physical examination: Some tenderness in epigastrium. Hemoglobin, 75%. Wassermann negative. Blood pressure 150.

Tube examination: Fasting contents normal. Test meal contents: Free HCl, 0.2%. Feces negative.

X-ray examination: Well marked delay at the cardiac orifice, irregular outline of fundus. Constriction of mid-portion of stomach. Peristalsis absent on lesser curvature higher up. Conclusion: Extensive pathological process involving the cardia and lesser curvature. Carcinoma. Operation showed no lesion of stomach.

This case was submitted to operation on the ground of the very positive finding by x-ray examination. It was not a merely suggestive finding but one of what is usually considered a positive type. The out about the diagnosis was in the absence of any abnormal finding by tube in the fasting contents. Duodenal lesions unless causing blocking of the pylorus or hypersecretion, often show no abnormality of stomach contents. Old ulcer scars of the lesser curvature may show no abnormality, but it would be very unusual to have a malignant lesion of such extent as the x-ray finding suggested here with a normal tube finding. Many cells would be expected and possibly occult blood.

I have records of at least ten cases where a positive diagnosis of ulcer or cancer by the x-ray operator has led the physician to operate in the face of normal findings in other ways, or to neglect the study of the other aspects of the case, in which neither ulcer nor cancer was found.

The above is an extreme case. As a rule when a markedly abnormal x-ray finding is present some pathological condition is present either in the stomach or in the abdominal tract somewhere. As stated, adhesions are a common cause of x-ray findings similar to those found in cases of cancer or ulcer. Witness cases 12, 13, and 15. Mild abnormalities, as the presence of incisura, are, however, common without actual lesion. Sometimes a finding is present one day and absent the next. Sometimes it shows on some plates and not on others. All these facts incline us to the feeling that we must go very slowly in accepting the x-ray finding as absolutely diagnostic of such conditions, in many cases, unless supported by other strong evidence. This point of support by other findings is illustrated in Cases 14 and 15, in the first positively, in the second negatively.

A third point in connection with the study of stomach cases which has been much impressed upon me in my recent experience is the frequency with which two conditions, syphilis, and alcoholism, or constant use of alcohol, exist as the underlying cause of severe conditions of stomach trouble, suggesting in their symptomatology conditions of organic stomach trouble. Syphilis of the cord has proven capable of being a cause of severe stomach signs suggesting ulcer, in several of my cases. Other cases have had what were apparently actual specific lesions of the stomach. I make it a rule to have a Wassermann test made in all obscure stomach cases, or cases where there is reason in the history to suspect syphilis. In some cases an examination of spinal fluid is necessary, a blood Wassermann being negative, and a fluid finding positive.

Alcohol, particularly the long and constant use of the poison, can cause conditions of stomach trouble which simulate in symptomatology and often in objective findings, as findings of blood, gastritis, etc., conditions of organic stomach trouble. This phenomenon is so marked that I hesitate to make a positive diagnosis of ulcer or cancer of the stomach in a patient addicted to alcohol, whatever the findings.

Here is a case of cord syphilis illustrating my point:

CASE 19. H. P., age 34 years, Sept. 26, 1912. Well up to eleven months ago. Then one night after eating had an attack of severe pain, located to left of navel, radiating to ensiform, vomited twice with it, no blood in vomitus. Since then has had some pain or distress after every full meal. About three times a week the pain is very severe and vomits with it, may vomit once or twice with relief, at times about every hour for 24 hours. Has lost 35 lbs. in this period. If very careful of diet has attacks less often. After milk and crackers no distress, but always has some after full meal. Has now been vomiting about every hour for last two days.

Past History. Had an eruption and mucus patches and loss of hair about eight years ago. Treated for two years for syphilis.

Physical examination negative. No tabes signs in reflexes. Abdomen tender generally. No spasm.

Stomach: Fasting contents, 10 c.c., no food, no blood, no stasis. Test meal, HCl, 0.16%.

X-ray: Outline of stomach normal. Peristalsis, extra vigorous. Slight 6-hour residue. Adhesions of cecum. Wassermann negative in blood.

The patient was placed on careful diet. Improved and was sent home.

Nov. 14. Returned. Well up to one week ago, but as patient went back to regular diet began to have distress and vomiting, 15 minutes after meals. Four days ago at 2 p.m. severe pain in epigastrium which lasted 12 hours, with repeated vomiting. Same thing next day at 3. Since then vomiting for 48 hours. Relief for few minutes at a time. Vomitus consists sometimes of food, often of green fluid.

Examination: The patient's face suggests that he is in great pain. Urine gives strong acetone test. He vomits all food. Given glucose by vein; acetone cleared up and vomiting less, but still some pain.

It was decided with 6-hour residue of bismuth and history of vomiting food 24 hours old that duodenal ulcer might be present, especially as no Wassermann test was obtained, and operation was advised.

Operation showed adhesions of cecum. No gallstones, no ulcer. After operation, urine showed slight acetone, but patient did well. Home Nov. 20.

Jan. 9. After operation O.K. up to one week ago. One week ago, after supper, he had pain and vomiting every hour for 24 hours. Three days ago vomited a basin full of black fluid and since then he has had constant pain and some vomiting. Acetone present in urine and vomitus. The patient was given glucose by vein to reduce acidosis.

Jan. 13. Vomiting ceased. Another Wassermann negative.

Jan. 16. Spinal fluid examined, 420 cells, mostly lymphocytes. Wassermann on fluid positive. Given salvarsan on 17th. Vomited after this for 24 hours, then ceased. Second dose on 21st, third on 28th (intraspinous). No vomiting after 19th. Sent home.

This case was apparently syphilis of the nerve centres with reflex stomach symptoms of gastric crisis. The symptoms suggest organic disease of the stomach. The x-ray finding was abnormal but not diagnostic of ulcer.

Syphilis affecting the stomach may also occur as a definite syphilitic lesion of the stomach. Such cases may give all the signs of ulcer or cancer, including tube and x-ray signs. Where we have such a finding with a positive Wassermann on the blood, we should consider syphilis as the cause of stomach symptoms and give salvarsan for a period before deciding to operate upon the case.

I have seen several cases of ulcer of the stomach and one ulcer of the duodenum associated with a positive blood Wassermann. The cases were operated upon as no change in conditions occurred with salvarsan. Ulcers were found but as they were not excised the actual nature of the ulcers was not determined. It is quite possible of course to have a syphilitic ulcer which has formed chronic connective tissue scars which tissue would not yield to specific treatment, though the fresh ulcer might.

Here is a very remarkable case representing the effect of alcoholism in causing disorder of the stomach and is a type of disorder which cannot be distinguished from that caused by organic lesion of the stomach due to ulcer or cancer. This case also illustrates that hematemesis and positive blood findings are not always a sign of ulcer or cancer:

CASE 20. F. H., 44 years, May, 1911. For 3-4 years the patient has suffered from stomach symptoms, as a rule following spree of drinking. For a week after a spree he would have nausea, sometimes vomiting, and much dyspepsia. Between spells no dyspepsia.

December, 1910. After a protracted bout, vomited for two days. Noted black color to vomitus and was told by a physician that it was blood. He quit drinking and had no stomach trouble up to one

week ago. Then he began to suffer from weakness and dizziness. Noted that his stools were black. No dyspepsia. Came to hospital by advice of physician who said that he was passing blood in his stools.

Examination: Hemoglobin 40%. Physical examination negative.

Tube examination: Fasting contents, 10 c.c. of clear fluid, few blood corpuscles in sediment and faint guaiac test, but finding not distinctive, as the little blood might have been due to irritation of the tube. Test meal: Free HCl, 0.18%. Feces gave positive blood test.

X-ray plate showed irregularity of outline on lesser curvature, and 6-hour bismuth residue. Fluoroscope showed failure of peristalsis at lesser curvature. Discharged after one month, as all bleeding had ceased and he had regained his strength.

Sept 6. Was well after discharge until today, when he vomited a quart of blood. No pain or distress in stomach. X-ray showed some irregularity on lesser curvature. Two weeks later the patient was operated upon, on the possibility of ulcer of lesser curvature (x-ray finding) causing recurrent hemorrhages, though the diagnosis of varices as the cause of bleeding was strongly considered. No evidence of stomach lesion was found. Large varices about esophageal end of stomach. Liver appeared normal. Such possibilities as this are to be considered in cases where hematemesis is the symptom. As a rule, of course, the diagnosis of ulcer is safe in such cases. But where alcoholism is present I hesitate to make the diagnosis of ulcer.

The description of the methods of clinical study which are utilized in the investigation of stomach cases, and of the value of the findings obtained by the use of these methods for diagnosis, with the illustration of the method of procedure and general plan of drawing conclusions from clinical findings in individual cases contained in the report of case records, gives you a good general idea of the subject of the study of stomach cases for purposes of diagnosis.

To summarize the subject matter of this review, I append an outline of the value of the various clinical findings for diagnosis, in the various separate diseases or disturbances of the stomach and duodenum.

1. Fresh bleeding ulcer of the stomach. History: A typical history of this condition is one of a short history of dyspeptic symptoms, as distress soon or late after eating, with finally the vomiting of a quantity of fresh blood. Such a record does not, however, occur in all cases of this type. Also vomiting of blood may occur in cirrhosis or in cancer. Such a record is, however, as a rule sufficient for the diagnosis of ulcer of the stomach or duodenum without resort to further methods of investigation, as tube examination or x-ray examination.

Tube examination. Fasting contents show fresh blood in fair quantity or a dark colored content giving a marked blood test by chemical method.

Feces examination shows a blood test.

X-ray examination often shows no sign in

fresh ulcer. It may show incisura and extra vigorous peristalsis.

2. Fresh bleeding ulcer of the duodenum.

History may include vomiting of blood as with gastric ulcer, but often is simply a history of distress in the stomach coming long after eating and relieved by food. Sometimes there is acute pain and a tender point to the right and above the navel. Dizziness and faintness are not uncommon symptoms.

Tube examination may show blood, may show simply hypersecretion, may be entirely negative. Feces examination shows marked blood test. X-ray examination often shows no signs. In some cases irregularity of duodenal outline with extra peristalsis above or pylorospasm are seen.

3. Chronic ulcer of either the stomach or duodenum located at the pylorus or causing narrowing of this opening.

These cases may have a very typical, almost pathognomonic history as follows:

For a long period the patient has suffered off and on from dyspepsia. The symptoms are distress or pain coming, as a rule, long after eating. Symptoms sometimes relieved by food. There is often pyrosis and heartburn. Vomiting may and may not be a feature in the early part of the history. It may be of food or of acid fluid. The trouble may come by spells of a week or a month. In the intervals of a month or more there may be no symptoms. The spells get more frequent and more severe. Finally vomiting becomes a marked factor as contraction of the scar tissue begins to close up the pylorus. Vomiting gives relief for a time. Then dyspepsia returns, of moderate severity the first day, more on the second day until in from 24 to 48 hours from the vomiting there is acute distress and vomiting again. The amount vomited is large, a quart or two. This history is not found in all cases, but at the stage of closure of the pylorus vomiting of large amounts of food is always a feature.

Tube findings in these cases are typical. Fasting contents is of excessive quantity, 200 to 1000 c. c., and contains much food. Often sarcinae. Free HCl is present. A blood finding is rare. Test meal contents show free HCl, often in excessive amount, *i. e.*, hyperacidity. This is the finding in the final stage of constriction of the pylorus. In the earlier stages simply hypersecretion in the fasting contents, 60 to 150 c. c. of fluid, and hyperacidity with the test meal may be the findings. X-ray findings in the final stage are typical. There is a 9- to 24-hour bismuth residue, and absence of sphincter and cap. Peristalsis above pylorus is very deep and vigorous. Often no bismuth is seen to enter the duodenum. In earlier stages there may be simply a six-hour residue and a poorly defined sphincter and cap with extra vigorous peristalsis above.

4. Chronic ulcer of the stomach located in the curvature, or fundus or antrum, that is, located where it causes no blocking of the pylorus. The history in these cases varies greatly. It is often a history of general dyspepsia for a long period,

often intervals of freedom, but often continuous, such as may be found in hyperacidity or in nerve dyspepsia. Symptoms may be simply distress, and gas coming soon or late after eating. Vomiting may or may not be a feature. Pyrosis and heartburn may be present. Tube findings vary greatly in these cases. Fasting contents may show hypersecretion, 60 to 100 c. c. of clear acid fluid, with no food. Free HCl present. Blood is rarely found but may be. Often the contents is only 25 to 40 c. c. in amount. As a rule the sediment contains a large number of cells. Test meal contents as a rule show a high percentage of free HCl but may give normal findings.

X-ray findings vary greatly in these cases. Where the ulcer is penetrating or perforating, a large deep scar or diverticulum is seen. There is an area showing irregularity of outline where peristalsis is sharply checked, being vigorous above and below this point. On the wall opposite this region there may be spasmodic contraction, giving an incisura. Often there is a bismuth shadow outside the regular stomach outline. In callous or superficial ulcer the only sign may be an incisura opposite the seat of the ulcer. In some cases of this latter type the x-ray gives no sign of abnormality.

5. Chronic ulcer of the duodenum below and not directly involving the pylorus. These cases often give a typical history, viz:

Dyspeptic attacks over a long period, with intervals of complete freedom from symptoms. During the spells of trouble there is distress, often pain, coming long after eating and relieved by food. There may be pyrosis and heartburn. Real pain is often present, but may be absent. Vomiting may or may not be a feature. The vomitus consists as a rule of acid fluid without food, but may consist of food. The attacks are apt to recur on the advent of cold weather.

This history is always suggestive of duodenal ulcer but a similar history may occur in cases of functional hyperacidity, or adhesions, and of gastric ulcer. Many cases of duodenal ulcer do not give this typical history. Tube findings may show hypersecretion in the fasting contents. Often the fasting contents is normal in these cases. The test meal contents as a rule show an excess of free HCl. X-ray findings show as a rule in these cases a normal stomach outline and sphincter with irregularity of the duodenal cap or of the duodenum, and peristalsis of the stomach above the pylorus abnormally deep and vigorous. In some cases where the ulcer is penetrating, a diverticulum of the duodenal wall is present. Six-hour bismuth residue may occur.

The clinical picture in these cases depends greatly upon how much obstruction or functional spasm of the pylorus is caused by the ulcer. As stated, if the contraction scar actually narrows the lumen of the pylorus we may have actual food stasis by tube and marked bismuth stasis, with irregularity or absence of duodenal cap by x-ray. Ulcers below the pylorus do not cause

actual blocking but often cause spasmodic closure which may result in a finding of hypersecretion, fluid stasis but not food stasis, in the stomach and a six-hour bismuth stasis. Often in the latter type, however, there is no abnormality by tube and by x-ray, simply an irregularity of the duodenum and extra peristalsis above. This sign is always suggestive of ulcer but occurs equally with adhesions involving the duodenum and may be found where no organic trouble is present. A feature of the x-ray findings in these cases of duodenal ulcer may be an abnormally rapid emptying of the stomach in the early stages combined with a retardation of complete emptying—that is, a hyperistalsis with a six-hour bismuth residue.

6. Cancer of the stomach located elsewhere than at the pylorus, that is, not causing obstruction. The history in these cases varies greatly. In some cases there is a history of several months or a year of dyspepsia of indefinite type, loss of appetite, fullness or distress after meals, gas, combined with loss of weight and strength, a history which cannot be distinguished from that of nerve debility and other conditions.

In other cases there is a history of but a few months with a record of vomiting as almost the first symptom of the malady in the case, without any previous dyspepsia. Cancer symptoms are apt to be continuous when once started as contrasted with chronic ulcer symptoms which, save where there is contracture, are as a rule intermittent.

The tube findings show often a fasting contents of somewhat large amount, 30 to 50 c. c., containing a sediment of numerous broken down cells mixed with mucus. Often the positive blood test is present, but this is by no means a constant feature. Free HCl may be absent or present. Sometimes we get fresh blood or a coffee colored contents. These blood and cell containing contents are always suggestive of cancer, but can occur in ulcer or alcoholic gastritis.

Test meal contents may or may not show free HCl. The simple absence of free HCl in a test meal contents is not specially suggestive of cancer, but when such a finding is combined with evidences in the fasting contents findings as blood, or stasis, which mean either cancer or ulcer, this absent free HCl test meal finding is strong confirmatory evidence for cancer.

X-ray findings may show an area of stomach wall where peristalsis is lacking with a sluggish peristalsis over the whole stomach. This latter feature is a specially characteristic finding of cancer as against ulcer of the curvature where peristalsis is apt to be very vigorous above and below the area of absent peristalsis. Often the shadow of the affected area is very irregular and mottled or moth eaten. Sometimes a crater can be made out. It must be borne in mind that these characteristic findings of cancer, are some-

times obtained where no organic lesion of the wall is present, in adhesions, for example, or even with functional disturbances pure and simple. Also that the presence of cancer of the wall can be overlooked by x-ray examination, as it may be by tube examination. Feces finding may show blood, a finding which is rare in chronic ulcer though common, of course, in fresh ulcer.

7. Cancer involving the pylorus.

The history here may be one of gradually increasing dyspepsia symptoms coming finally to daily vomiting of large amounts of contents. Or the symptoms of vomiting after meals may come at the start of symptoms. Most cases have a short history of symptoms as contrasted with cases of ulcer of the pylorus, save the cases where cancer has formed on an old ulcer. Symptoms are, as a rule, continuous when once started. There is often much loss of weight and of strength. Anemia is often marked. Tube findings show in the fasting contents, large amounts of contents with food stasis. Blood may or may not be present, but is much more common in the condition than in ulcer at the pylorus, especially changed blood, discoverable by chemical test. Free HCl may or may not be present. Test meal contents may or may not show free HCl. Where this is absent with the stasis finding in the fasting contents the evidence is good for cancer against ulcer. Where it is present the trouble may be of either type. X-ray finding shows as a rule absence of sphincter and cap, with sluggish stomach peristalsis, as against the active peristalsis in ulcer. There is bismuth stasis, often nine-hour or twenty-four-hour stasis. Often an irregular moth eaten shadow of the wall is seen.

Feces findings often show blood. This is much more common in cancer than in chronic ulcer of the pylorus.

8. Adhesions involving the stomach or duodenum.

There is no definite type of history in this condition. Sometimes the record of symptoms is exactly similar to that described as a typical record of ulcer of the stomach or duodenum, viz, distress or pain coming long after food and relieved by food. Sometimes the story is one of an indefinite type, a dyspepsia similar to the history seen in some cases of cancer, in gall stones, constipation.

Tube findings are often negative in these cases but may be similar to those often seen in ulcer of the stomach, viz., hypersecretion and excess of free HCl. Sometimes with adhesions involving the duodenum we have hypersecretion. Adhesions rarely cause food stasis. X-ray findings may show good evidence of adhesions, viz., a stomach drawn to the right with extra vigorous peristalsis, or an irregularity or dilatation of the duodenum with extra vigorous peristalsis above the pylorus, the exact picture often given by duodenal ulcer. I have seen adhesions to the stomach give a picture by x-ray which was taken to mean cancer. The possibility of adhesions as

a cause of stomach symptoms suggesting ulcer has always to be considered. Differentiation may be difficult since both tube and x-ray may give signs with adhesions similar to those found in chronic ulcer. Adhesions not involving the stomach but affecting the intestines, as in cases of appendix trouble, or after surgical operations, often give stomach symptoms which are probably reflex effects. These conditions do not, however, give abnormal findings by tube or x-ray in the stomach or duodenum.

9. Chronic gastritis.

The history of symptoms in these cases is not of a definite type, save where there is a record of much use of alcohol. The stomach signs may be severe, as distress and vomiting, over a considerable period, or they may be simply symptoms of dyspepsia, as fullness after eating and gas eructations. Tube findings show a fasting contents over normal in amount of 40 to 80 c. c. consisting of a mucus filled fluid. The sediment often contains numerous stomach cells. Blood is rarely found in a simple gastritis. Free HCl is, as a rule, absent in an advanced chronic gastritis though traces may be present both in the fasting contents and the test meal contents. Tube findings are very definite for diagnosis in these cases. Gastritis is often an associate of cancer, but it often occurs as a disease by itself. X-ray findings are, as a rule, negative in chronic gastritis. They may show an atonic stomach with sluggish peristalsis. Feces findings are negative.

10. Ptosis of the stomach.

The history of this condition is not very definite. Many cases exist without stomach symptoms. Often the symptoms which are called stomach symptoms are intestinal symptoms or general symptoms of relaxations and low blood pressure. Tube findings are as a rule, negative. There may be delay in the emptying of the stomach, but it does not amount to twelve-hour food stasis. X-ray findings show a low stomach but are often otherwise normal. Six-hour bismuth residue may sometimes be present. Atonic peristaltic action may be present.

11. Hyperacidity of the stomach.

Where this condition exists as an independent condition, *i. e.* not as an associate of ulcer, we often get a history absolutely resembling the history of ulcer cases, both gastric ulcer and duodenal ulcer, *viz.* a long period of dyspepsia with distress or pain coming long after food with heartburn and pyrosis, sometimes with vomiting. The distress is often described as a gnawing sensation and is relieved by food. Spells of trouble are, as a rule, intermittent with periods of freedom.

Tube findings may show a fasting contents of 50 to 100 c. c. of clear fluid containing free HCl and no food or blood, *i. e.*, hypersecretion.

Test meal findings show an excess of free HCl in percentage. The fluid portion of the contents is large. Sometimes there is no fasting hypersecretion, simply a test meal hyperacidity.

X-ray findings, as a rule, show no abnormality in pure uncomplicated hyperacidity, as they commonly do when the hyperacidity is associated with ulcer. It is important to remember that though hyperacidity is a common symptom of ulcer, it does occur unaccompanied by the lesion.

12. Hypoacidity is a not uncommon condition. It may be an associate of cancer or chronic gastritis or atrophy, but it occurs in uncomplicated form. There is no definite history to these cases. Often the condition is discovered where no record of stomach symptoms is present. Tube findings show a normal fasting contents, absence of free HCl being a frequent normal finding in the fasting contents. The test meal contents show no free HCl.

13. Organic disease of the cardiac orifice and esophagus. Cancer at the cardia or just above in the esophagus may cause obstruction to the passage of the tube. The tube may bring up undigested food content, with no acid if there is obstruction here. If no food has been taken recently or if obstruction is not marked the tube may bring up mucous contents containing an excess of cellular elements. Often fresh blood is obtained.

X-ray in such cases may show retention of bismuth at the cardia, often dilatation of esophagus—sometimes the cancer shadow involving cardia with absence of contraction here.

Cases of cardiac spasm not due to organic disease of cardia may show tube findings of food or mucus as in organic trouble, but not the cellular content found often in cancer. X-ray shows retention and dilatation, but no shadow. Diverticulum may show clearly by x-ray examination.

A STUDY OF THE EFFICIENCY OF MIXED TOXINS (COLEY) IN INOPERABLE SARCOMA. A CRITICAL ANALYSIS OF 134 MICROSCOPICALLY PROVEN CASES.

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(Continued from page 377.)

CASE REPORTS.

ABDOMINAL WALL.

CASE 41. (Table, Case No. 110.) Case of Dr. M. E. Green. Small round cell sarcoma of the abdominal wall. A man of 20 with growth four inches broad extending from pubes to umbilicus.

Pathological Report. Small round cell sarcoma. After 60 injections of mixed toxins tumor disappeared. Patient in good health without recurrence four and a half years later. Recorded in Group F.

AXILLA.

CASE 42. (Case No. 8.) Small round cell sarcoma of axilla. J. G., 45, female. Shortly after an

incomplete operation to remove tumor in axilla, mixed toxins were started and continued several weeks. The mass was of several months' duration, invested axillary vein, and upon microscopical examination proved to be round cell sarcoma. No recurrence 7 years 10 months later. Recorded in Group F.

CASE 43. (Case No. 9.) Large round cell sarcoma of axilla. P. B., 67, male. Mass of glands in axilla of three years' duration, varying in size from a hazel nut to a walnut, in all $2\frac{1}{2} \times 3$ inches. Excised as much as possible. Operation incomplete. Toxin treatment immediately started and continued for about 7 months. Recurrence below clavicle 2 years later. During removal of same, axillary vein torn and sutured. Toxins resumed. Arm still swollen 4 months later. (Question of tied vein or recurrence.) Recorded in Group D.

GROIN.

CASE 44. (Table, Case No. 66.) Small round cell sarcoma of groin. Case of Dr. Tritch of Findley, Ohio. 62, male. Twice recurrent sarcoma of groin.

Pathological Report. Small round cell sarcoma. Toxin treatment for 3 or 4 months, with gradual and complete disappearance. Patient in good health without recurrence $1\frac{1}{2}$ years later. Recorded in Group F.

CASE 45. (Case No. 17.) Small round cell sarcoma of groin. E. C. B., 21, male. A mass in left groin of 3 weeks' duration, developing after a growth was excised.

Pathological Report. Small round cell sarcoma. Quick recurrence. Two months later toxin treatment started. Injections into tumor and buttocks with well-marked reactions. Maximum dose, 5 minims. Tumor practically disappeared, but recurred when treatment was less regularly given. Toxins resumed regularly with entire disappearance. Patient in good health without recurrence over 5 years later. Recorded in Group F.

CASE 46. Personal Case. Referred by Drs. D. F. Jones and Wyman Whittemore. Round cell sarcoma of the groin and pelvis. A. A. K., a Syrian of 25. House No. 194236. March 7, 1914, admitted with hard mass size of small grape fruit covering Scarpa's triangle on the left, and passing 2 cm. beneath Poupart's ligament. In places fluctuant, slightly movable and tender. This growth first noticed one year ago and remained size of peanut for two months. For past two weeks growth very rapid with constant pain.

March 8. Operation, Dr. Jones. Semi-circular flap turned inwards, exposing growth, which firmly invests femoral vessels. Incision carried above Poupart's and dissection made along iliac vessels retroperitoneally. Chain of glands felt extending far back in the pelvis. Eradication impossible.

Pathological Report (143-45). Dr. Whitney. Lymphoma. A tumor size of croquet ball with smaller nodules in a chain at one point. Soft, grayish homogeneous section. Microscopical examination shows structure of a lymph node with well marked follicles and great increase of pulp.

Recurrence steadily appeared and in a month, despite x ray treatment, filled Scarpa's triangle and extended above Poupart's into pelvis. This mass was firm, about $3\frac{1}{2}$ inches broad and 6 inches long.

Toxin treatment started April 9, 1914, and still

being given (now ten months). Injections into growth every second or third day. Maximum dose, 11 minims. Reactions often severe. At first there was marked softening and decrease in the size of the mass, then began to grow, producing considerable varicocele. Treatment, however, continued and a gradual diminution in size has occurred. Mass has several times ruptured and discharged. Now there is present, just below Poupart's a mass about $1\frac{1}{2} \times 1$ inches, and another above Poupart's apparently distinct from the first, which evidently extends into the pelvis, seems about size of small egg. The patient is in excellent flesh and color. Recorded in Group E.

INTRA-ABDOMINAL.

CASE 47. (Case No. 48.) Round cell sarcoma of omentum, ascending colon, small intestine and liver border. E. J., 23, female. Laparotomy discovered an inoperable mass involving above-named structures.

Pathological Report of Section. Round cell sarcoma. Toxin treatment continued for about 5 months. Injections alternately into abdominal wall and buttocks. Patient in good health without evidence of recurrence 12 years later.

CASE 48. (Table, Case No. 1.) Spindle cell sarcoma of cecum, omentum, and mesentery. Case of Dr. Mynter. Laparotomy discovered inoperable growth involving above-mentioned structures.

Pathological Report. Spindle cell sarcoma. Toxin treatment for two months, with entire disappearance of mass. Patient well 4 years later. Recorded in Group F.

CASE 49. (Table, Case No. 8.) Inoperable spindle cell intra-abdominal sarcoma. Case of Dr. H. L. Williams, Rochester, N. Y. A woman with an intra-abdominal mass. Section removed.

Pathological Report. Spindle cell sarcoma. Treatment one month with mixed toxins with entire disappearance of mass. Patient well 17 years later. Recorded in Group F.

CASE 50. (Table, Case No. 35.) Recurrent intra-abdominal spindle cell sarcoma. Case of Dr. Zabriske, Greenfield, Mass. A woman of 40. Attempted removal of intra-abdominal growth followed by recurrence.

Pathological Report. Spindle cell sarcoma. Treatment with unfiltered toxins for one year with disappearance of mass. Patient well 12 years later. Recorded in Group F.

CASE 51. (Case No. 49.) Round cell sarcoma of iliac fossa. R., 55, male. At exploratory operation a mass the size of two fists of six months' duration was discovered deeply seated in right iliac fossa. Section removed.

Pathological Report. Round cell sarcoma. Toxin treatment with intervals of rest for about a year with almost complete disappearance. Patient well one year later. Recorded in Group E.

CASE 52. (Case No. 18.) Round cell sarcoma of small intestine mesentery and glands. W., 25, female. Exploratory laparotomy discovered tumor size of fist, involving above-mentioned structures. Section removed.

Pathological Report. Round cell sarcoma. Toxin treatment started in one month and continued over 4 months. The mass had disappeared, but symp-

toms of local peritonitis developed (due to necrosis of tumor), and a fecal fistula developed. Patient recovered temporarily but recurrence ensued with death in a few months. Recorded in Group C.

PELVIS.

CASE 53. (Table, Case No. 14.) Inoperable round cell sarcoma of pelvis. Case of Dr. Packard of Boston. 15, female. Pelvic mass which proved inoperable.

Pathological Report of Section. Round cell sarcoma. Treated with unfiltered toxins for a few weeks with disappearance of mass. Patient well 33 months later. Recorded in Group F.

CASE 54. Personal Case. Referred by Dr. S. J. Mixer. R. B., young man.

August 6, 1912, Dr. Mixer enucleated a retro-peritoneal mass from the pelvis the size of a fist. The boy's body showed many large brown spots (congenital). In the right thigh just below Scarpa's triangle a hard, nodular, somewhat tender tumor, 2 x 3 x 1 inches. Many other smaller masses scattered over extremities and trunk. Two large masses and one smaller mass were excised.

Pathological Reports (Dr. W. F. Whitney). 1. A small fibro-neuroma of the leg. 2. A large 10 x 3 cm. myxo-fibroma of the leg. 3. A lobulated, firm mass 14 x 6 cm. from the pelvis, a large spindle cell sarcoma. "It is interesting to find these three types of growth, the last two probably degenerative forms of the generalized fibro-neuromatosis. (Von Recklinghausen's disease.)"

For 8 months progressive gain in strength and weight.

June 10, 1913, operation by Dr. Mixer. Cecum and lower sacrum removed, permitting the shelling out of a mass in several lobes. A mass higher up could still be felt. Through an abdominal incision this growth was found to be the size of a small orange, but its removal was thought inadvisable.

Pathological Report (Dr. W. F. Whitney). Lobulated tumor masses together the size of a fist. On section they were soft, homogeneous and of grayish color. Microscopical examination showed interlacing bundles of large spindle cells. The blood channels had little else for walls but tumor tissue. Spindle cell sarcoma.

The boy's suffering prior to and after this operation was excruciating. Morphia in doses of $\frac{1}{2}$ to $\frac{3}{4}$ grains was necessary every few hours. In addition, during the 24 hours he received phenacetine, aspirin, codeia, and cannabis indica.

Toxin treatment started June 25, 1913. Injections into abdomen daily, then every other day, then every third day, for $5\frac{1}{2}$ weeks. Maximum dose, 18 minims. Despite severe reactions recurrence rapidly occurred and patient died Nov. 19, 1913.

The toxins gave striking relief of pain for several weeks after their institution. Only small doses of morphia were occasionally necessary.

UTERUS.

CASE 55. (Case No. 67.) Recurrent round cell sarcoma of uterus. McM., 50, female. Removal of large pelvic tumor one year ago.

Pathological Report. Round cell sarcoma. A recurrence which infiltrated the whole pelvis developed, producing bladder symptoms. Toxin treatment started and continued for $2\frac{1}{4}$ years (118 injections). During two weeks the treatment was

stopped followed by return of severe pain. When toxins resumed, pain ceased. Mass entirely disappeared. Patient well 4 years later. Recorded in Group F.

CASE 56. (Case No. 66.) Malignant leiomyoma of uterus. Mrs. X., 42. Hysterectomy for large tumor.

Pathological Report. Leiomyoma. Recurrence within a few months, filling pelvis and apparently involving bladder. Its outline was irregular and consistency hard. Suffering great. Mixed toxins treatment with intervals of rest for 3 years. Pain ceased, mass became progressively smaller and softer and finally disappeared. Three years 11 months after treatment stopped patient in splendid health, and showed on examination little more scar tissue than is natural to hysterectomy. Recorded in Group F.

CASE 57. (Case No. 5, p. 142.) Mixed cell sarcoma of uterus. Case of Dr. J. M. Hundley, of Baltimore. Mrs. A. C., 38. Hysterectomy for infiltrating ovarian tumor size of fetal head.

Pathological Report. Round and spindle cell sarcoma of uterus. In less than a month recurrence firmly fixed to pelvic wall. Toxin treatment started and continued for 33 injections into cervix. Tumor disappeared in 8 months. Patient in good health without recurrence 9 years later. Recorded in Group F.

CASE 58. (Table, Case No. 39.) Mixed cell sarcoma of uterus. Case of Dr. J. C. Willy, New Orleans, La. Woman of 40. Toxin treatment started for large inoperable sarcoma of uterus. Continued with intervals of rest for 5 years. Mass nearly disappeared so that patient was able to get about and perform her regular duties. Went to Europe 6 years later. Recorded in Group E.

CASE 59. (Case No. 71.) Spindle cell sarcoma of uterus. Mrs. S. F., 42. Laparotomy was performed for removal of large pelvic tumor. This was seen to arise from the uterus, but was so extensively adherent that its removal was abandoned. Section taken.

Pathological Report. Edematous leiomyoma. Toxin treatment started and continued for 8 months. Injections into gluteal region. Reaction marked. Mass diminished in size and became more mobile. Second operation then performed. Very extensive.

Pathological Report. Spindle cell sarcoma. Two years later patient perfectly well without evidence of recurrence. Recorded in Group E.

OVARY.

CASE 60. (Table, Case No. 72.) Spindle cell sarcoma of ovary. Case of Dr. F. L. Tosier, Washburn, Maine. Woman of 22. Exploratory laparotomy revealed an inoperable mass arising from the ovary. Section removed.

Pathological Report. Spindle cell sarcoma. Toxins continued for 3 months with entire disappearance of mass. Patient in good health 4 years later. Recorded in Group F.

CASE 61. (Case No. 74.) Inoperable round cell sarcoma of ovary. Mrs. E., 26. A fixed mass, which filled pelvis and extended to umbilicus, was

found at laparotomy to be a nodular, dark bluish-white, vascular, very adherent tumor arising from ovary. Section removed, abdomen closed.

Pathological Report. Angiosarcoma. Toxins started in about 2 months and continued for 3 months (47 injections). Progressive decrease in size and increase in mobility. Second operation then performed. A freely movable mass size of a child's head with small pedicle easily removed.

Pathological Report. Round cell sarcoma. Necrotic. Healthy child subsequently born. One year 8 months after toxins stopped, death from acute pneumonia. No evidence of recurrence. Recorded in Group E.

CASE 62. (Case No. 72.) Recurrent inoperable mixed cell sarcoma of ovary. M. C., 16. Large tumor of left ovary removed.

Pathological Report. Round and spindle cell sarcoma. In 3 months an inoperable recurrence discovered at laparotomy. A retro-peritoneal tumor filling pelvis and lower abdomen. Toxin treatment. Reactions often severe. No mass evident one month later. Toxins continued. Patient ran a slight temperature attributed to absorption of broken down tumor. Died 22 months after first operation. Recorded in Group C.

CASE 63. (Table, Case No. 93.) Recurrent round cell sarcoma of ovary. Case of Dr. Porter, Fort Wayne, Ind. Woman of 40. After operation developed inoperable recurrence in pelvis. Toxin treatment for 2 months with disappearance of mass. Recurrence 4 years later not controlled by toxins. Recorded in Group C.

KIDNEY.

CASE 64. (Case No. 6, p. 143.) Round cell sarcoma of kidney. Case of Dr. H. K. McDonald, Halifax, N. S. M. P., 27, female. Incision in loin disclosed tumor of kidney adherent anteriorly to a larger growth. Section removed. Laparotomy revealed large inoperable retro-peritoneal mass.

Pathological Report. Round cell sarcoma. Toxin treatment started in two weeks and continued for about a month with disappearance of tumor. One year later in good health without evidence of recurrence. Recorded in Group F.

CASE 65. (p. 146.) Hypernephroma. Case of Mr. Arthur Connell, Sheffield, England. M. W., 37, female. Mass of 4 years' duration in right loin with hematuria. Operation from behind disclosed irregular tumor of kidney. Section removed.

Pathological Report. Hypernephroma. Two weeks later transperitoneal nephrectomy. Huge recurrence 4 months later. Toxin treatment for 4½ months with disappearance of tumor. One year later in good health without evidence of recurrence. Recorded in Group F.

CASE 66. Personal Case. F. M., 40, male. Referred by Dr. C. G. Mixer. On May 25, 1913, Dr. Mixer opened a large perinephric abscess through an incision in left flank. After ten ounces of pus had been evacuated a mass larger than a grapefruit still persisted towards median line. Section removed.

Pathological Report (Dr. W. F. Whitney). Sarcoma of kidney involving lumbar muscles.

Toxin treatment started June 15 and continued by Dr. E. H. Baxter of Hyde Park under my direc-

tion until Aug. 26 (10 weeks). Maximum dose, 16 minims. Reactions often severe. Five and one-half months after toxins discontinued there still existed a constantly discharging sinus in the flank leading to a mass much reduced in size, not tender and causing no discomfort. He has gained 50 pounds since operation. This small persisting mass may be purely inflammatory residue or a temporarily quiescent sarcoma. He refuses further operation. Recorded in Group E.

BONE (not giant cell).

CASE 67. (*Annals of Surgery*, November, 1914, Case 6, p. 540.) Periosteal round cell sarcoma of femur. 58, male. Condition regarded by Dr. W. J. Mayo too advanced even for hip amputation. Toxin treatment with entire disappearance. Patient well 5 years later. Recorded in Group F.

CASE 68. (*Annals of Surgery*, November, 1914, p. 562.) Round cell osteo-sarcoma of humerus. A. C., 31, female. An extensive growth of the upper humerus, tip of coracoid and glenoid cavity was curetted as much as possible. Mixed toxins started.

Pathological Report. Round cell osteo-sarcoma. Treatment continued 3 or 4 months with entire disappearance of growth. Four years later no trace of sarcoma. Working as house-maid. Fourteen years after treatment right cerebral hemorrhage with almost complete unilateral paralysis. No trace of sarcoma. Recorded in Group F.

CASE 69. (Case No. 66.) Large round cell sarcoma of spine with metastasis in lower jaw. C. E. C., 27, male. Operation was performed for tumor of lower lumbar region the size of two fists.

Pathological Report. Large round cell sarcoma. Within 2 months huge recurrence with depressed unhealed area 6 x 8 inches. The lower jaw presented a growth involving the entire horizontal ramus. Toxin treatment in gluteal region (49 injections). Maximum dose, 8 minims. Softening of jaw and back tumors occurred. Wound healed. Tumors disappeared. Five years and 3 months later patient well and without evidence of recurrence. Recorded in Group F.

CASE 70. (Case No. 43.) Spindle cell sarcoma of spine. S., 44. An incomplete operation for growth of spine followed by inoperable recurrence.

Pathological Report. Spindle cell sarcoma. Toxin treatment for two months. Injection into tumor and at a distance. Mass entirely disappeared. Patient well 8 years later. Recorded in Group F.

CASE 71. (Table, Case No. 64.) Mixed cell sarcoma of superior maxilla. Case of Dr. Lillenthal. 20, female. An excision of superior maxilla failed to eradicate growth.

Pathological Report. Spindle cell osteo-sarcoma. Mixed toxins were started and continued several months. Patient well two years later. Recorded in Group F.

CASE 72. (Case No. 9, p. 147.) Round cell sarcoma of superior maxilla with metastases. Case of Dr. O. K. Winberg, Lake Park, Minn. A. Y., 41, male. Four weeks after being struck by horn of steer developed tumor of superior maxilla. Resection of upper jaw did not eradicate disease and re-

currence developed. Swelling of abdomen and joints ensued, also metastases in axilla. Toxin treatment for 5 months (103 injections) with disappearance of jaw tumor and axillary growth. No evidence of recurrence 6 years later, when he died from acute nephritis. Recorded in Group F.

CASE 73. (Table, Case No. 85.) Round cell sarcoma of inferior maxilla. Case of Dr. F. R. Calkins, Watertown, Ill. Boy of 12. At operation it was found impossible to eradicate malignant growth of lower jaw.

Pathological Report. Round cell sarcoma. Toxin treatment for 4 months. One and one-half years later boy in good health without recurrence. Recorded in Group F.

CASE 74. (Case No. 23.) Round cell sarcoma of radius. F. S. 25, female. Exploratory operation upon a growth involving the lower end of the radius of 6 or 7 months' duration, revealing on microscopical examination round cell sarcoma. One week later this growth involved about 3 inches of radius and presented a fungating mass at site of recent incision. Toxin treatment instituted in 3 days and continued 6 weeks. Maximum dose, 5 minims. Reaction marked. Growth entirely disappeared in 3 weeks. Two years and 9 months later patient perfectly well. Recorded in Group F.

CASE 75. (Case No. 37.) Recurrent spindle cell sarcoma of tibia. W. F., 27, male. Canadian farmer. Two efforts at removal with curetting of bone were followed by recurrences.

Pathological Report. Spindle cell sarcoma. Toxin treatment started when a mass at junction of middle and upper thirds of tibia was 3 x 4 inches in extent and ulcerated. Treatment continued for 2 months. Tumor rapidly disappeared. While bone cavity was healing developed a severe attack of erysipelas. Healing complete 2 or 3 weeks later. Fourteen years after treatment discontinued, patient in excellent health with sound and useful leg. Recorded in Group F.

CASE 76. (Case No. 22.) Recurrent inoperable spindle cell sarcoma of iliac fossa. Mrs. D., 40. Exploratory laparotomy revealed an inoperable mass in the right iliac fossa size of a cocoanut, attached to ilium and abdominal wall. Section removed.

Pathological Report. Spindle cell sarcoma. Toxin treatment for 6 weeks with entire disappearance of mass. Recurrence of mass extending from crest of ilium to median line and to above umbilicus. Toxin treatment with intervals of rest for 3 months with marked diminution in size. About 3 months later mass had increased considerably. Toxins resumed and continued for 7 months. Tumor entirely disappeared. Twelve years after treatment patient in good health with no traces of the tumor. Recorded in Group F.

CASE 77. (Table Case No. 100.) Chondro-sarcoma of ilium. Case of Dr. William Tietz, Spangle, Washington. 34, male. Toxin treatment instituted for mass size of child's head arising from ilium. *Pathological Report* had been chondro-sarcoma. Treatment continued for 5 months with entire disappearance of growth. Patient well 1½ years later. Recorded in Group F.

CASE 78. (Case No. 32.) Recurrent spindle cell sarcoma of metatarsal bone. F. K., 16, female

Growth developed on foot after injury. Third and fourth metatarsals were removed. After a second injury to foot recurrence quickly developed. Foot amputated at ankle joint. The following year a recurrence appeared after an injury to the stump, followed quickly by metastasis in popliteal space. This became size of child's head and was removed. Mixed toxins started for tumor of stump. This entirely disappeared but was followed in 18 months by recurrence both in stump and popliteal space. High amputation (just below trochanter) was followed by recurrence in buttock. An attempt to remove this was unsuccessful. Toxin treatment resumed and continued with intervals of rest for 3 years. Growth disappeared. Patient well 10 years later. Recorded in Group F.

CASE 79. (Case No. 29.) Spindle cell sarcoma of sternum. Mrs. G., 38. Tumor of upper sternum involving articulation of clavicle, size of one-half an egg. Section removed.

Pathological Report. Spindle cell sarcoma. Toxin treatment for ten months. Reaction marked. At first tumor increased in size and metastases appeared in neck. Growths later softened, broke and finally disappeared. Maximum dose 30 minims (largest dose in Coley's experience). Four years later death from another cause with no evidence of recurrence. Recorded in Group F.

CASE 80. Personal Case. Referred by Dr. W. J. Mixer. Multiple leiomyomata. A. F., female, 55.

Back has always been weak since injured by sled when a child. Fifteen months ago "eleven lb. fibroid-uterus" removed by another surgeon. Seven months ago "small fibroid" removed from sacro-iliac region. For six weeks terrific pain between scapulae. For three weeks pain and progressive weakness of legs. For ten days walking impossible.

Back presents kyphosis and lateral scoliosis of fourth to tenth dorsal vertebrae, and numerous subcutaneous masses (question neurofibromata) one chestnut size opposite seventh cervical vertebra and one walnut-size over sacrum. Right leg can be moved only with great effort. Knee jerks, Babinsky and Oppenheim reflexes all present and extremely active. Right ankle clonus greater than left. Retention of urine, and occasional incontinence of feces.

Dec. 6, 1914. Removal of tumor over sacrum for diagnosis. Pathological report, probably leiomyoma.

Dec. 8. Removal of tumor of right shoulder. Pathological report, leiomyoma.

Dec. 10. Dr. Mixer performed laminectomy at sixth cervical to third dorsal; dura not opened. Upon retracting cord tumor mass visible extending anteriorly and passing above cord in saddle fashion. This growth was of infiltrating character, had invaded marrow of the vertebrae and pleural cavity through one intercostal space. Excised as thoroughly as possible with removal of considerable bone from body of vertebra and first rib. Impossible to eradicate growth. Pathological report, Dr. Whitney, spindle cell sarcoma.

Dec. 11. More power in right leg, and has voided normally.

Dec. 12. Legs better but weakness of left arm.

Dec. 15. Left arm improved but right arm weaker, cannot be raised but can be flexed.

Toxin treatment started Dec. 21, and still being given, now eight weeks. Injections into abdomen. Reactions mild. Maximum dose 23 minims. Progressive increase in strength of legs, arms slowly

improving, can walk with assistance. Recorded in Group E.

CASE 81. (Case No. 38.) Inoperable sarcoma of spine involving brain. Baby boy of two years nine months. Tumor of upper spine with paresis of both arms. Exploratory operation showed tumor arising from cervical vertebrae. Section removed.

Pathological report. Fibrosarcoma. Toxin treatment instituted and was still (over two years) in progress when case reported. Maximum dose, 6 minims. Good reactions. After eight months movements of hands and power to hold up head returned. Legs still practically useless. Recorded in Group E.

CASE 82. (*Annals of Surgery*, Nov., 1914, Case XV, p. 541.) Periosteal round cell sarcoma of femur. Case of Dr. Wilmuth of Louisville, Ky. Under toxin treatment tumor of femur practically disappeared. Patient apparently well 18 months later. Recorded in Group E.

CASE 83. (Case No. 40, p. 70.) Round cell sarcoma of femur (periosteal.) H. K., boy of ten. Pain of increasing severity in left leg for several months, when fusiform enlargement of entire left femur $6\frac{1}{2}$ inches long and within $2\frac{1}{2}$ inches of either extremity was discovered. Section removed.

Pathological report. Small round cell sarcoma. Gradual diminution in size. Fifty-seven injections. Maximum dose, 11 minims. Tumor disappeared in a year but shortly afterwards metastases occurred in both orbits and boy died in a few months. Recorded in Group D.

CASE 84. (Table Case No. 34.) Recurrent small round cell sarcoma of superior maxilla. Woman of 29. Had been operated upon for tumor of upper jaw; eradication impossible. Recurrence developed which involved the orbit.

Pathological report. Round cell. Daily injections into tumor for five weeks. Maximum dose 12 minims. Entire disappearance by sloughing. Fourteen months later no local recurrence but probably metastasis in tibia. Recorded in Group D.

CASE 85. (Case No. 31.) Periosteal spindle cell sarcoma of humerus. M. L., 35, male. Spiral fracture of left humerus. X-ray showed no growth. Two weeks later growth at site of fracture which increased rapidly in size. Several months later an exploratory operation showed growth involved upper third of bone. Central portion of growth curetted.

Pathological report. Spindle cell sarcoma. Toxin treatment in a few days and continued for 18 months. Marked diminution in size and immediate cessation of pain. Spontaneous union of pathological fracture in a few weeks. Despite several curettings growth persisted and finally shoulder joint amputation performed. Six months later metastases in pectoral region removed and toxins resumed. Two years later patient in good health. Recorded in Group C.

(To be continued.)

Book Reviews.

Guiding Principles in Surgical Practice. By FREDERICK EMIL NEEF, B.S., M.L., M.D. New York: Surgery Publishing Company. 1914.

Dr. Neef has, according to his own statements, undertaken the tedious task of formulating a system where there was none. It is an attractive little volume of somewhat less than 200 pages. Although he limits his title to General Principles, he goes into accurate and satisfactory details in all applications of these principles, at least in so far as the principles are those applicable to the surgical operative attack, the preparation for this attack and its after treatment. He has reduced things to their simplest essentials and avoids unnecessary elaboration. In his chapter on Anesthesia, after referring to reasons for displacing chloroform by the less toxic ether, he adds, "chloroform has not yet been displaced." Upon this point we could hardly agree for with the exception of the exigencies of war and in the tropical countries, chloroform has been displaced to a very considerable degree, and is being constantly displaced more and more. Local anesthesia, spinal anesthesia and anoci-association are not considered. The book is interesting and pleasant to read. Marginal notes in red ink attract the eye, and on the whole are an addition to the mechanical structure of the book. With so many large text-books at hand containing long chapters upon surgical principles, it may happen that Dr. Neef's volume will not attract the attention it merits.

Operative Surgery. The Head and Neck, the Thorax and the Abdomen. By EDWARD H. TAYLOR, M.D., B.S. (Dub. Univ.), F.R.C.S.I.; Professor of Surgery in the University of Dublin; Surgeon to Sir Patrick Dun's Hospital. New York: William Wood and Company. 1914.

It would seem as if there existed at present a sufficient number of worthy text-books on the subject of operative surgery; yet the more we examine Taylor's book, the more we must acknowledge that it justifies its existence, and that it has added a literally beautiful book to our surgical library. The plates, whether they are diagrams, outlines, photographs, half-tones, or color plates, are extremely fine. They justify superlatives. The book comes from the pen of an Irishman and covers only the operative procedures most frequently required in general surgical practice upon the head and trunk. Surgical anatomy preceding the various sections is concise, but adequate. At the end of the sub-divisions of the chapters are valuable and always suggestive comments. Excellent use is made of the varying sizes and styles of type in headings and sub-divisions of the text. The book is a large one in appearance, although as a matter of fact it contains but 500 pages. It produces a most favorable impression on the reviewer, and on account of the unusual combination of brevity, the high level of illustration and the extensive experience and undoubted ability of its author, it should become a favorite reference book in America.

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HARMONIZATION OF STATE AND FEDERAL NARCOTIC LAWS.

IN another column of this issue of the JOURNAL we publish a communication presenting questions about the operation of the new Harrison anti-narcotic law. These questions are excellent examples of the type of queries which must naturally arise in the minds of practitioners under the somewhat puzzling new conditions established by the enactment and enforcement of his law. They, therefore, deserve particularly careful and explicit reply, since the questions which have occurred to one will undoubtedly occur also simultaneously to many.

As we have very clearly stated in these pages, there are two narcotic laws which affect us at this time, the state law, which has been in effect since Jan. 1, 1915, and the federal law, which became active Mar. 1, 1915.

We also called our readers' attention to the fact that these two enactments do not harmonize, and directed particular attention to the provi-

sion in the state law governing compound pills, tablets and powders. These preparations may be dispensed and no record made of them, under the state law, if they do not contain more than 1/20 gr. of morphine or 1/4 gr. codeine, or any of their salts. Tablets containing heroin are not exempt, nor are suppositories.

The federal law does not exempt any of these preparations.

The state law does not exempt any drugs from record which are dispensed at the time of a personal visit. The federal law does this, but does not define the length of time covered by a personal visit. It may be reasonably interpreted to mean such medication as is needed to carry the patient along until the next visit of the physician, or for a period of 24 hours. It will be seen by this that the administration of morphine hypodermatically and the dispensing of morphine tablets in the case cited would comply with the federal law, if no record were made, but would violate the state law.

At a meeting of the Chamber of Commerce of the United States of America, on February 3, 1915, Mr. Charles Wesley Dunn presented an address advocating uniformity of state and national food and drug laws throughout this country; and on February 15 a special committee of the Chamber of Commerce reported a series of recommendations for legislation toward this end. Among these was recommended the enactment throughout the Union of a uniform state narcotic law "modeled after, and supplementing to the necessary degree, the recently enacted (Harrison) federal narcotic law, thereby to promote the effective, coöperative and harmonious regulation of the commerce in and the handling of narcotic drugs throughout the United States." A suggested draft for such a law was appended to the report, "with due appreciation of the fact that modifications may probably be necessary to meet local and other conditions."

In Massachusetts the movement has already been undertaken to establish such state legislation as shall accomplish this end and remove the present discrepancies and conflicts between the federal law and the previously existing state law. The bill proposed for this purpose (House No. 1814) has been reported in part as follows by the committee of public health:

"Section 1. It shall be unlawful for any person, firm or corporation to sell, furnish, give away or deliver coca leaves or any cocaine or any alpha or beta eucaine or any synthetic sub-

stitute for them, or any salts, compound or derivative thereof, except decocainized coca leaves and preparations thereof, or any opium, morphine, heroin, codeine or any preparation thereof, or any salt, compound or derivative of the same, except upon the written order of a manufacturer or jobber in drugs, wholesale druggist, registered pharmacist actively engaged in business as such, physician, veterinarian, dentist registered under the laws of the state in which he resides or an incorporated hospital, college or scientific institution through its superintendent or official in immediate charge, or upon the written prescription of a physician, dentist or veterinarian, registered under the laws of the state in which he resides, bearing the date when given, his office address, the registry number given him under public acts two hundred and twenty-three of the sixty-third congress, approved December seventeenth, nineteen hundred and fourteen, *the signature in full of the physician, dentist or veterinarian giving it, the name and address of the patient for whom prescribed, which prescription, when filled, shall show the date of filling and shall be retained on file by the druggist filling it for a period of at least two years. The prescription shall not again be filled, nor shall a copy of the same be made, except for the purpose of record by the druggist filling the same, and it shall at all times be open to inspection by the officers of the state department of health, the board of registration in pharmacy, the board of registration in medicine and the authorized agents of said departments and boards and by the police authorities and police officers of cities and towns.*"

The remainder of this section provides the exceptions applying to the prescription, sale or distribution of preparations not containing more than a stated minimal quantity of the given narcotic drug.

"Section 2. It shall be unlawful for any practitioner of veterinary medicine or surgery to prescribe any of the drugs mentioned in section one of this act for the use of a human being, and it shall be unlawful for any physician or dentist to prescribe, sell, give away or deliver any coca leaves or any cocaine or any alpha or beta eucaine or any compound, derivative or synthetic substitute for them, or opium, morphine, heroin, codeine or any preparation thereof, or any salt, compound or derivative of said substance to any person known to such physician or dentist to be an habitual user of those drugs.

"Section 3. The provisions of this act shall not be construed to prevent any lawfully authorized practitioner of medicine or of veterinary medicine or of dentistry from prescribing, administering or dispensing any drugs that may be indicated for any patient under his care."

The remainder of this section outlines the form and method in which the record book of drugs prescribed, dispensed or administered

shall be kept; and concludes with a provision that the "above record shall not be required where the physician or dentist administers, *outside of his office*, any of the drugs mentioned in this act, to a patient on whom he personally attends."

Sections 4 and 5 contain provisions relating to manufacturers or jobbers of drugs, wholesale druggists and registered pharmacists.

Sections 6 and 7 define the necessary licensure of persons coming within the provision of the act.

Section 8 provides for the exemption of common carriers engaged in transporting narcotic drugs, including nurses or assistants acting as the agents of physicians, dentists and veterinaries.

The remainder of the act is as follows:—

"Section 9. The provisions of this act, except those sections which require the ordering of the above enumerated drugs on an official order blank, and the keeping of the same on file, and the keeping of the record relative thereto, shall apply to cannabis indica and cannabis sativa, except the same shall not apply to prescriptions, preparations or remedies which do not contain more than one-half grain of extract of cannabis indica or more than one-half grain of extract of cannabis sativa in one fluid ounce, or if a solid or semi-solid preparation, to the avoirdupois ounce, nor to liniments, ointments or other preparations containing cannabis indica and cannabis sativa, which are prepared for external use only.

"Section 10. The repeal of any law by this act shall not affect any action, suit or prosecution pending at the time of the repeal for an offense committed or for the recovery of a penalty, or forfeiture incurred under any of the laws repealed.

"Section 11. Whoever violates any provision of this act shall be deemed guilty of a misdemeanor, and shall be punished by a fine of not more than one thousand dollars, or by imprisonment in the house of correction or jail for a term not exceeding one year, or by both such fine and imprisonment.

"Section 12. Chapter six hundred and ninety-four and chapter seven hundred and eighty-eight of the acts of the year nineteen hundred and fourteen and sections two to six, inclusive, of chapter three hundred and eighty-seven of the acts of the year nineteen hundred and ten are hereby repealed.

"Section 13. This act shall take effect upon the first day of April, nineteen hundred and fifteen."

Two points in this proposed law seem to deserve particular comment. In Section 1 it is provided that each prescription shall bear "the

signature in full of the physician, dentist or veterinarian giving it." Literally interpreted, this clause would mean the signing of the full Christian and middle name, if any, a procedure inconvenient and likely often not to be complied with. A clause should be added to the bill at this point defining the term, "signature in full," which, for the purposes of this act, is presumably equivalent to legal signature, that is, the habitual manner in which a name is signed.

The second point calling for comment is in the provision at the close of Section 3, which, as it stands, would require every physician or dentist to keep a complete record of any narcotic drugs administered to patients *in his office*. With the increasing use of local anesthesia for minor and even semi-major surgical operations performable in a surgeon's office, the inconvenience and impracticability of complying with this provision are obvious. There seems no valid reason why the same exemptions should not apply to drugs administered by a physician or dentist in his office, as to those administered by him to patients in their homes or at hospital. The clause, "*outside of his office*," should, therefore, we believe, be stricken from the prospective act.

In conclusion, we strongly urge the adoption of the personal visit exemption clause in the proposed state law which has been introduced in the House in an attempt to harmonize the state with the federal statute. Physicians who feel that this is desirable should regard it as their duty to the profession, as well as their personal interest, to express their opinion immediately to their representatives in the legislature.

FAMILIAL DISEASES.

In another column we publish a detailed report of a series of cases of progressive neuromuscular atrophy occurring in a family without heredity. The complex group of conditions, of which the cases described are examples, is attracting more and more attention as experience widens in these often exquisitely hereditary conditions. The cases reported by Dr. Hatch are of interest from the fact that although the disease described must be regarded as one of the hereditary type, it could not be discovered that it had appeared in previous generations. It must, of course, happen, and frequently has been

observed, that such diseases occur spontaneously in one generation, to be thereafter indefinitely transmitted; but what the conditions are which should suddenly cause this degenerative tendency remain, as yet, wholly obscure. It is not to be questioned that the intensive studies now being made on syphilis as a cause of race degeneracy must be considered in this connection, but as in all such problems, whatever its influence may prove to be, it can manifestly at present not be demonstrated why these particular forms of degeneration should occur. The future, no doubt, opens a wide field of speculation and possible investigation in this really practical field. In general it may be said that students of heredity may, with advantage, devote their energies to the investigation of such demonstrated family affections, rather than be led astray, as they too often are, into unfruitful fields. Apart from the interest which is connected with the family appearance of this group of disorders, a more satisfactory classification than we have at present is much to be desired, as, for example, a clearer line of demarcation, if such can be made, between the primary myopathies, the spinal atrophies and transitional forms, such as the cases reported by Dr. Hatch. We desire particularly to call attention to the original contribution of Dr. Hatch's article in the use of electrocardiograms to demonstrate graphically muscular tremors. It is altogether possible that the further use of this method may throw light upon the question of tremors in general and their possible diagnostic significance. A further contribution of importance is the systematic examination of the spinal fluid in such cases. Although these fluids were negative, so far as Wassermann reactions were concerned, they showed interesting alterations in the albumin and globulin content and a pathological gold chloride reaction. This also affords a valuable suggestion for future research. Such cases as these should be reported in detail in order that ultimately statistical material may be secured from which classifications of value may be made.

THE HARVARD EXPEDITIONARY UNIT.

ON Wednesday of this week, March 17, the Harvard unit sailed from Boston, aboard the

steamer *Canopic*, for Gibraltar, whence it will proceed for service at the American Ambulance Hospital in Neuilly, Paris. This unit will relieve that from the Western Reserve Medical School of Cleveland under charge of Dr. George W. Crile, which has served at the hospital since January 1. The Harvard unit will have control of 150 beds and will continue on service from April 1 to June 30. It will be in charge of Dr. Harvey Cushing as surgeon-in-chief and Dr. Robert B. Greenough as surgeon and executive officer. The further personnel of the unit will be made up as follows:—

“Richard P. Strong, M.D., professor of tropical medicine, bacteriologist; Robert B. Osgood, M.D., instructor in orthopedics, orthopedic surgeon; Beth Vincent, M.D., assistant in surgery, assistant surgeon; Walter M. Boothby, M.D., lecturer in anesthesia, anesthetist; Fred A. Collier, M.D., '12, Elliot C. Cutler, M.D., '13, Philip D. Wilson, M.D., '12, and Marius N. Smith-Peterson, M.D., '14, resident surgeons; Lyman G. Barton, Jr., M.D., '12, surgical assistant; Orville F. Rogers, Jr., M.D., '12, medical assistant; George Benet, M.D., '13, laboratory assistant; Miss Edith I. Cox, Miss Geraldine K. Martin, Miss Helen Parks and Miss Marion Wilson, operating nurses.”

The JOURNAL extends its most cordial good wishes for the safety and success of this Boston expedition, whose work will be not only of profit to its members, but of distinction and credit to the profession of this city and of New England. It is the expectation and hope of the JOURNAL to publish, for the interest and instruction of its readers, frequent communications from members of this expedition while it is at the front, and, after its return, more extended articles of medical research based on its experience.

COMPLIMENTARY DINNER TO DR. THEOBALD SMITH.

AFTER a service of more than twenty years to the Harvard Medical School, Dr. Theobald Smith is to sever his connection with the University, to assume larger duties in conjunction with the work of the Rockefeller Institute for Medical Research. The distinction of Dr. Smith's services to his college and to the advancement of medical science leads his colleagues to desire that some permanent memorial should be made on the occasion of his departure. The interest of Mr. Bela Pratt has been secured, and

it is proposed to present a bas-relief of Professor Smith to the Medical School. Reductions of this relief will be made and presented to contributors to the fund.

In addition to this permanent memorial, invitations have been issued to a complimentary subscription dinner to be given to Dr. Smith on Saturday evening, April 17, at the Harvard Club of Boston. The governors of the club have given the use of the large hall, and President Lowell is to preside. Already 150 acceptances have been received so that a large and successful gathering is assured. It is desired, however, that as many physicians as possible should take advantage of this opportunity to express the appreciation and realization of the profession of the importance and distinction of Dr. Smith's service to medical science and research, and their cordial good wishes and confidence in his promise of even greater achievement in the new duties to which he goes. The subscription (\$5.00) of all those wishing to take part in this occasion should be sent by March 20 to Dr. Marshal Fabyan, 379 Commonwealth Avenue, Boston.

MEDICAL NOTES.

BRITISH VITAL STATISTICS FOR 1914.—Statistics recently published in England show that during the year 1914 the crude death-rate of England and Wales was 13.9, the infant mortality 105 per thousand births, and the birth-rate 23.6. It is somewhat striking that the birth-rate is 25 in the larger cities, 24 in the smaller towns, and only 22 in the rural sections, whereas the corresponding infant mortality in these respective regions is 113, 104 and 93, respectively. The city of London, however, shows a higher birth-rate and a lower infant mortality than those of any of the other large British cities.

OVERCROWDING AND TUBERCULOSIS IN BRADFORD.—In a discussion before a recent meeting of the English National Anti-tuberculosis Association, Dr. Harold Varrow of Bradford, Yorkshire, called renewed attention to the much greater prevalence of tuberculosis among the overcrowded population of that city. In Bradford 106,000 live in houses having three rooms or less and 170,000 live in houses having four or more rooms. Nearly two-thirds of the pulmonary tuberculosis in the city occurs in the former group. Dr. Varrow pointed out that the eradication of tuberculosis is hardly to be expected until such overcrowding of urban population is controlled.

LOW DEATH-RATE IN NEW YORK.—The mortality in Greater New York for the past week was noteworthy by reason of the extreme low point reached by the death-rate, namely, 13.91 per 1000 of the population. This is an unprecedentedly low figure for this season of the year in this climate. The good showing of the figures of the past week, as compared with those of the corresponding week of 1914, is heightened by reason of the high mortality this time a year ago, due to exceedingly trying meteorological conditions and to the increase in the prevalence of influenza. A comparison of the two weeks will show that in the week of March 7, 1914 the deaths from influenza were almost treble, from diphtheria and croup and scarlet fever almost double, and from measles quadruple those of last week.

Viewed from the point of age, every age group showed a noticeably decreased mortality from the week of 1914. Under 5 years of age, the decrease was 118 deaths, between 5 and 65 years of age the decrease was 174 deaths, at 65 years of age and over, the decrease was 117 deaths.

These comparisons are made without allowing for any increase in population. If such allowance be made, the total decrease in the mortality of the past week with that of 1914 would be 486 deaths.

The death-rate for the first ten weeks was 3.90 per 1000 of the population, as against 15.41 for the corresponding period in 1914, a decrease of 1.51 of a point.

SANITATION IN PORTO RICO.—A recent report of the director of sanitation of Porto Rico, reprinted from the report of the governor of that island, records the activities of the department of public sanitation for the fiscal year ended June 30, 1914. During this period the total number of deaths in the island was 21,775, corresponding to a rate of 18.6 per thousand, as contrasted with a rate of 31.5 in 1888 and 40.8 in 1900. The report contains statistics of morbidity and mortality for the northern, eastern and southern districts of the island and an account of mosquito eradication in 50,574 premises on which a total of 55,567 breeding places were found and variously destroyed. The report also describes details of water supply, sewer system and municipal sanitation. The division of veterinary inspection reports forty-three positive cases of glanders. There are careful accounts of the prevalence and control of the various important infections on the island and a description of the work of the biological laboratory. The remainder of the report is occupied with statistical tables.

FOOT AND MOUTH DISEASE IN NEW YORK.—Report from Syracuse, N. Y., states that on March 8 a quarantine order was extended by the New York State Commissioner of Agriculture over Onondaga County because of the recent spread of foot and mouth disease in that region.

The situation is said to be particularly serious in the territory surrounding Syracuse, where 231 cattle have recently been killed.

AWARD OF THE GROSS PRIZE.—It is announced by the trustees that the Samuel D. Gross prize of the Philadelphia Academy of Surgery for the year 1915 has been awarded to Dr. John Lawrence Yates of Milwaukee, Wis., for his essay on "Surgery in the Treatment of Hodgkins' Disease." The amount of this prize is \$1500.

RABIES IN CALIFORNIA.—The California State Board of Health has recently published the results of an investigation which it has made in the prevalence of rabies in that state during the past five years. Since 1909 the disease has occurred in every section of the state except the northern coast and the mountain counties, and a few others where the population is very sparse. In 1912, 300 positive cases occurred in dogs, and in 1913, 320. During the last nine months of 1914 there was an abrupt decrease in the number of cases, which reached a total of only 100 in that year. During the quinquennium in question, there were 25 human deaths from the disease in California. It is interesting to note, and somewhat contrary to the usual conception, that, at least during the period under consideration, the disease was more prevalent in winter than in summer.

INFANTILE IMMUNIZATION AGAINST TUBERCULOSIS.—At a recent session of the British Royal Institute of Public Health in Edinburgh, Dr. Rist of Paris discussed the subject of bovine tuberculosis, to which he considers infants are peculiarly susceptible. At this meeting it was also suggested that early bovine infection, from which a child recovers, may, perhaps, serve the purpose of permanent immunization against infection with the human tubercle bacillus in later life.

EUROPEAN WAR NOTES.—Report from Serbia, by way of Berlin on March 11, states that typhus fever is extensively prevalent in Serbia. Nine American nurses have been infected, 63 physicians, including 2 Americans, have died of the disease, and the total number of deaths from it is said to reach several thousand.

It was announced on March 10 that the American Red Cross will soon send to Europe two additional units, of 3 surgeons and 12 nurses each, for service with the Belgian army in the field.

On March 11, the total of the New York Belgian relief fund amounted to \$969,851.24; the New York Red Cross fund to \$467,779.75; the American Ambulance Hospital fund to \$348,389.82; the American Jewish relief fund to \$532,937.14; and the New York Polish relief fund to \$25,225.47.

On March 13, the total of the New England Belgian relief fund amounted to \$233,127.57; the Massachusetts Red Cross fund to \$111,904.93; the Boston Jewish relief fund to \$44,274.42; the Polish relief fund to \$36,175.18; and the Lithuanian relief fund to \$12,303.95.

BOSTON AND NEW ENGLAND.

HOSPITAL BEQUESTS.—The will of the late Calvin W. Capen of Dedham, Mass., which was filed recently in the Norfolk Probate Court, leaves a residuary bequest, which it is estimated will amount to about \$100,000, to the Elizabeth F. Capen Hospital fund. This fund of \$40,000 had been already given by the testator to build a hospital in memory of his wife.

The will of the late William H. Storey of South Boston, Mass., which was filed on March 8 at the Suffolk County Probate office, contains a bequest of \$10,000 for the Boston Floating Hospital. The remainder of the estate is left in trust for the benefit of the testator's family, but after the death of certain beneficiaries, one-quarter of the income of the residue is to be paid to the Vincent Memorial Hospital of Boston.

EPIZOÖTIC OF FOOT AND MOUTH DISEASE.—On March 4 the quarantine in this state for foot and mouth disease was extended to include the town of Woburn, although no cases have, as yet, been discovered in that community.

On March 5 the quarantine was also extended to Melrose, Mass., and a number of infected or suspected cattle were killed in Lexington and Waltham, Mass. Two suspected human cases of the disease have been reported at Worcester, Mass., one of which is believed to be positive. No new cases among cattle have been reported since March 2, when 30 were found at North Grafton, Mass. At the same time additional powers have been given by the executive council to Dr. Lester H. Howard, commissioner of animal industry, to meet the situation arising from this recrudescence epizootic.

The order approved authorizes the commissioner to restrict at any time by order the movement of cattle, sheep, other ruminants and swine in any city or town of the Commonwealth, when, in his opinion, the control and eradication of foot and mouth disease require such action. He is empowered to extend or diminish the radius of quarantined areas surrounding premises on which foot and mouth disease exists or has existed since Nov. 5, 1914.

According to present indications, the total number of cattle destroyed by this second epizootic will approximate 900, as compared with 1156 in the first outbreak.

On March 9, nine new cases of foot and mouth disease were discovered at Marlboro, Mass., and on March 10, on account of the prevalence of the disease in Everett, the local quarantine was extended to the adjacent city of Chelsea.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending March 9, 1915: Diphtheria, 77, of which 7 were non-residents; scarlatina, 77, of which 7 were

non-residents; typhoid fever, 3; measles, 134, of which 2 were non-residents; tuberculosis, 73, of which 1 was non-resident. The death-rate of the reported deaths for the week was 18.17.

Obituary.
SAMUEL WOOD LANGMAID, M.D.....	422

DR. SAMUEL WOOD LANGMAID died in Brookline, February 3, 1915, in his 78th year, closing a medical career which covered the period of half a century. He was born in Boston, June 26, 1837. His parents, Samuel H. and Dorcas Sawyer Langmaid, at the time of his birth were living on Charles Street; later they moved to Roxbury, and in 1855 to Cambridge. He was fitted for college at the Roxbury Latin School and was a member of the Harvard Class of 1859. A year after graduation from college he entered the Medical School, completing his course as surgical house officer at the Massachusetts General Hospital, and graduating in 1864, with the degrees of A.M. and M.D.

In June, 1864, Dr. Langmaid volunteered, and became acting assistant surgeon in the United States Army. He was at first ordered to White House Landing, Va., but the next month was sent to the hospital at Readville, Mass., where he served until the closing of the hospital a year later. After a few months in Europe he began general practice in Boston on Park Square. He was on the surgical staff of the Carney Hospital from 1868 to 1880. In 1866 the Children's Hospital was founded and he became one of the surgeons, serving until after the new building on Huntington Avenue was opened in 1882. He then gave up general surgery and established a department for diseases of the throat, of which he had charge for many years.

When Dr. Langmaid began practice the specialty of laryngology was slowly developing in Europe. On account of his own voice and his association with singers, he followed with interest everything connected with the larynx, and became one of the pioneers of the specialty in this country. He joined the American Laryngological Association in 1880, two years after its foundation, and was president in 1891, when the Association met in Boston. In 1881 he was appointed assistant physician for diseases of the throat in Dr. Knight's clinic at the Massachusetts General Hospital, and took charge of this clinic for six months in every year until 1892, when he resigned. He became a member of the American Climatological Association in 1887, and was vice-president in 1901. He was a member of the Massachusetts Medical Society, and of other medical societies and clubs in Boston.

Dr. Langmaid's private practice became more and more limited to the upper respiratory tract and after about 1880 he gradually withdrew

from other work. He had many patients among the musical and theatrical professions, and was often consulted by visiting singers and actors. He occasionally contributed to the literature of the larynx. He had three papers in the old *Archives of Laryngology*, which in 1880 started its short lived career. These papers were on "The Application of the Principles of Vocal Culture," "On the Singing Voice," and "A Common Form of Vocal Disability." He later published a dozen or more other articles, which are listed in the *Transactions of the American Laryngological Association* for 1898 and 1908. During the latter years of his life his health became poor, and he finally retired from practice in 1912.

Dr. Langmaid did much for vocal music in Boston. He had a beautiful tenor voice and he took every opportunity to promote good singing. While in college he sang in the college chapel, and was leader of the Glee Club. So irrepresible was his music that he was once summoned before the authorities for singing as he walked through the yard. In the course of his life he became a member of many musical associations, the Chickering Club, the Parker Club, the Boylston Club and later the Apollo Club and the Cecilia. Of his many interests, perhaps the one nearest to his heart outside of medicine was the Harvard Musical Association, of which he was president for many years. He was also a director of the New England Conservatory of Music. For a quarter of a century he sang tenor in the quartet at Trinity Church, before the establishment of the vested choir. He had a large acquaintance, not only among the musical people of Boston, but also among the noted singers of the world, several of whom were at times his patients.

His interests and his friendships were not confined to medical and musical circles. As a boy he spent his summer vacations in New Hampshire, and acquired a true sportsman's love for the woods, and for hunting and fishing. In later life, whenever he had the opportunity, he went off with his dogs into the country, or with his rod to some trout stream. He thoroughly enjoyed the life in the open, and the intelligence of his dog, and the fine art of fishing. But equally he sought the society of his fellow men and was a particularly sociable and congenial companion. He was a charter member of the Tavern Club and for some time a member of the Saint Botolph Club.

Dr. Langmaid married in 1870 Miss Ella M. Tuttle, and had two daughters, Miss Bertha Langmaid and Mrs. Conrad Hobbs. Mrs. Langmaid and both daughters survive him.

Miscellany.

MEDICAL EXTRACTS FROM SEVENTEENTH CENTURY LETTERS.

In a recent issue of the *Lancet* are published a number of extracts on medical topics from seventeenth century letters in the valuable manuscript collection of the Duke of Portland at Welbeck Abbey. Some of these are as follows:—

"*Richard Andrews to the Countess of Newcastle*, at Welbeck. London, May 10th, 1633.—"I understand your ladyship is with child, and that therefore you decide to be furnished with such help in physics as shall be fit, and such as you have had heretofore. I have therefore sent down to you a powder to hasten the birth and make it more easy. It is made of cassia, saffron, and borax. When you are in travail I would have you take of the powder as much as will lie upon a groat in a spoonful of burnt white wine, or bezoar water, or spirit of saffron. If you should be long in labour and grow faint, there is an excellent cinnamon water to take a small spoonful of to refresh your spirits. But there is a water in a little glass, called Adrian Gilbert's water, which is commended above all others in child-birth. There are other comfortable waters and spirits sent down in a little 'seller,' of which you may make use now or at any time. There is a glass of *confectio alehermes* to take a little of when you are fainting, and in the evening you may take the quantity of a dry bean, either alone or mingled with cordial water, and four or five grains of bezoar stone. I have also sent you an eagle stone which in time of labour being tied about the thigh will make the labour easier."

"*Matthæw Boucherett to the Earl of Newcastle*, Welbeck. April 23rd, 1637.—To enter into a discourse of the mineral waters lately found in Derbyshire, in Kedleston Park, though I could wish it had fallen into the hands of a more skillful inquisitor of nature, yet since your lordship commanded it from me I will deliver my opinion briefly. That I may treat of them in order, it is necessary to find out from what mineral they borrow their quality. That which we first meet with is their strong smell, which shows the waters pass through a matrix where bitumen or a kind of clammy clay, like pitch, being of the nature of brimstone, is generated. If anyone had rather determine that they pass through sulphurous veins, I am not he that will absolutely contradict him, yet I must tell him the country people affirm that silver being cast into that water, taken from the spring head, was presently died of a gold colour, and I cannot conceive how that should come from sulphur, but rather from the aforesaid bitumen joined with nitre or some other fossil salt, whose tenuity doth dye the silver of a gold colour. Moreover, that country is so replenished with mines of coal, which are nothing else but bitumen petrified,

that I may believe these waters pass through veins where coals are yet in their first principles, I mean before they be grown to a hardness, and from thence these waters borrow their quality. Besides some of these waters being distilled do show the same, for nothing whatsoever remains in the bottom of the lymbeck, but a little portion of salt with a certain black substance which clearly shows the smell, colour, and savour of bitumen. I cannot find any reason that they pass through veins of iron or vitriol. The taste denotes no such thing. I have mixed gall with them, which is accustomed to turn such waters to ink, but this hath not changed the colour of these. Out of these things it may be lawful to declare those waters to be bituminous and a little nitrous. From hence it is evident that they are of a hot temperament and abound with their spirits. Now, if it be safe to drink these waters they are good against ulcers in the neck of the bladder. If they be actually hot, they are good against all old pains in the joints arising from moist and cold causes, being used in manner of a bath. As they are, they are good to exsiccate all external ulcers."

The freedom of speech in the former of these letters reminds one of the French lady in Sterne's *Sentimental Journey*. Another group of letters deals with the smallpox and its treatment:—

"*Samuel Wildey to the King*.—1660, October 8, Rotterdam—The general report being here that his Highness the Duke of York is by God's Almighty hand visited with the small pox, I most humbly pray your Majesty that a drop of blood should not be drawn from the veins of his Royall Highness, being very dangerous in his condition and firstly cause the death. The long experience that I have in that sorte of sickness make me so bold to sent my advice to your Majesty."

"*The Same to the Same*.—(No date.)—Remedy for the small pox: Take new laid eggs, three yolkes and whites, fry them in fresh butter that was never salted, twelve ounces, till the eggs be very hard. Then pour the butter from the eggs into a basson full of fayre cold water. Let it stand till the butter be cold and eaked, then take it off from the water and put it into a fayre vessel and beat it with a wooden spatter, continually adding three or four drops of damaske rose water, till the butter with beating come to be white. Then take of that unguent four ounces, add to it *saccarum* sugar-candy, *albi* two drams, finely pulverizated misse, *fyat electuarium*. Be sure to give of this three times a day, and so in the night the quantity of a nutmegg upon a knife point. Let it dissolve in his mouth and swallow it down—this by God's grace and assistance will cure the small pox in the throat which is the cause of most men's death in that disease. Then take the unguent without the candy and warme it in a saucer and anoynt the face and eyes with a feather morning and evening, and this preserves the eyes and keeps the face from

pitting. . . *Probatum est*. Now if it please God that his Royall Highness the Duc of York cannot sleep, lett a live pidgeon be slitt in two, and one halfe be applyed so soone as it is splitt to the sole of one foot and the other halfe to the sole of the other foot, fast bound with rowlers and so remaine twenty-four houres, and by God help that will procure sleep and extract the venemous quality of the disease from the heart and vitall spirits."

Still another group deals with cancer of the breast:—

"*Margaret Lady FitzJames to her Sister, Lady Harley*.—1673, Aug. 1, Fairfield.—My sister is now in ease, and as cheerful as it can be expected. The wound in her breast is narrower than it was but very deep, to the very bone. The doctor fears it is incurable. She has been for four days before I came in extreme pain which was caused by Sir John Wroth's tricks, exciting his horse into a fury. . . The doctor says my sister may live some years, but if the humor should come to be sharpe, as it was once before, I fear her time will not be long. The doctor speaks of ten years."

"*Ann Palmer to her Sister, Lady Harley*.—1673, Aug. 2.—I have a great deall to say if I were with you but can't in a letter. My breast is broke as I beleve you have heard, and it eats away more and more, soe as the doctor tells me plainly that there is noe cure but by manuall operation, and that is soe dangerous and painfull as I thinck not to submit to it, for he saith the cancer is fixt, and, as he thinckes, the rib is fouled. Though it was the first as I heard speak of it yet to mee it was not straining, because I thought it was soe afore. There are waters in this country which have cured a cancer in a woman's breast but it is not like mine; but being now in a desperate condition I am willing to try it as it is approved by the doctor to allay pain and keep the melancholy humor low. I was for a fortnight in great pain but now I am at ease."

THE FUNCTION OF THE CORPUS STRIATUM.

THE knowledge of the function of the corpus striatum in the human brain has long been involved in considerable obscurity, since electric stimulation of this region fails to elicit definite motor response. Evidence of degeneration in the lenticular portion of this basal mass of grey matter may however be clinically evidenced by a syndrome of symptoms characterized by motor disturbance, spasm and tremor. In the issue of the *Lancet* for April 27, 1912 (p. 1115), Dr. S. A. K. Wilson described this lenticular syndrome at length. In a recent number of *Brain* (vol. xxxvi, p. 427), Dr. Wilson further recorded the results of experimental lesions of the corpus striatum and their significance. This latest re-

search has been editorially reviewed in the *Lancet* in part as follows:—

"Electrical stimulation of the lenticular nucleus failed to induce any motor effect, thus confirming the results of most other observers. Electrolytic destruction, however, of definite portions of this nucleus was carried out on monkeys, which, after a period of three weeks, were destroyed, and the degenerated areas carefully examined. The results showed, in the first place, that the corpus striatum is independent of the cerebral cortex; it is also not connected directly with the spinal cord. Connections are more intimate, however, with the optic thalamus and regio subthalamica, including the red nucleus, and this fibre system links especially with the globus pallidus portion of the corpus striatum. It is clear that this body is an autonomous centre. Its function is exercised independently of the cerebral cortex but is motor in type, and is exercised in an efferent or caudal direction. Developmentally, it appears that in the lower forms of vertebrate life the corpus striatum exercises a more dominant motor control than it can exert in the higher forms, although such control cannot attain the complexity and range afforded by the elaboration at a later phase of the cortical brain or neopallium. The final function of the corpus striatum appears to be something of a 'steading' influence upon pyramidal innervation exerted through the strio-rubro-spinal tract. How this effect is brought about is suggested to be by virtue of what Sherrington terms the 'final common path.' The idea conveyed by this definition is that an end neuron effect, of motor type for instance, depends for its manner of action upon the particular stimulus applied to its arborisations at its proximal end, which stimulus, however, may be of varying nature, and may also reach the end neuron along different converging channels. The type of final stimulus is itself determined by the coördinate relationships between the possible sources. Amongst such channels are recognized cortical and cerebellar influences, for example: in addition, the corpus striatum is claimed to be capable of exerting an effect. Clinically it is suggested that absence of striate control induces tremor, well exemplified in cases of progressive lenticular degeneration. One question remains to be answered: Why is it that in the experiments performed tremor did not result? The reason suggested is that possibly the wide variation in functional capacity of the lenticular nucleus in different species, a variation worthy, apparently, of particular comment, forbids the anticipation that results gained in experiments upon the ape need necessarily be identically reproduced in man."

It may be that, situated as it is in intimate relation to the internal capsule, the corpus striatum when undergoing degenerative processes would affect the function of the motor fibres in the capsule. Such processes would be likely to arise from arterial disease of the twigs from the

anterior choroid artery supplying this region. Apparently the demonstrated functional activities of the corpus striatum are resident rather in its lenticular than in its caudate portion.

INVESTIGATION OF POLIOMYELITIS IN VERMONT.

IN the issue of the JOURNAL for Dec. 24, 1914, we noted the arrangements for a comprehensive study of poliomyelitis in Vermont by the State Board of Health in coöperation with Dr. Simon Flexner of New York and Dr. Robert W. Lovett of Boston. The following letter to the daily press from Dr. Charles S. Caverly, president of the Vermont Board of Health, states interestingly the progress and plans of this valuable piece of research:—

"In common with most of the Northern states, Vermont has suffered quite severely at times during the last 20 years from this disease. The first notable outbreak of the disease recorded in literature occurred in this state.

"We have during the last five years had two rather sharp outbreaks, and each outbreak of course leaves the usual number of cripples. It has become a very serious problem, and the medical profession throughout the country has been taking a very live interest in solving the problems presented by this disease. As is well known, these problems have received much attention at the Rockefeller Institute in New York, and at various other points, especially Boston, where Dr. Lovett himself has been prominently identified with the work.

"The state board of health of Vermont has recently been given a considerable sum of money by a loyal Vermonter, who has been observant of the disastrous effects of these epidemics of infantile paralysis. With this money, the board has undertaken three lines of work.

"First, it has been able to interest and secure the coöperation of Dr. Robert W. Lovett, of Boston, who has been to five points in the state to examine and recommend treatment for those who have been maimed by the disease. It would be difficult to overestimate the success so far of Dr. Lovett's work. He has succeeded in interesting physicians, nurses and parents, so that everywhere his suggestions, seconded by those of his assistant, Miss Wright, are being most carefully and persistently followed out. The detail of the work undertaken by the board seeks to minimize the effects of the disease.

"The second line of work undertaken by the board in this connection has been research work into the cause and methods of transmission of the disease. The board has been exceedingly fortunate in securing the help of Dr. Simon Flexner of the Rockefeller Institute in the work, and he has detailed Dr. H. L. Amoss, his assistant, to conduct the work in Vermont. The board

has fitted up a laboratory in the College of Medicine at Burlington, which was placed at its disposal by the university authorities. With the aid of animal experimentation, it is hoped to throw some light upon the baffling problems presented by the epidemiology of this disease. Dr. B. H. Stone, the director of the laboratory, will have charge of this work in Dr. Amoss's absence from Vermont, and Dr. Towne, a young graduate, has been engaged to devote all his time to the details of the laboratory work.

"In the early summer it is planned to have meetings at various places in the state, to which physicians will be invited to listen to the best authorities available on the subject of the cause and prevention of infantile paralysis. This is the third detail of the campaign we are conducting.

"There were approximately 275 recognized cases of this disease in Vermont during the last summer. Fifteen per cent. of these were fatal. The disease has been at times quite prevalent throughout the Northern states, and it is not known that Vermont has suffered more than her neighbors.

"We have been keeping very close track of the cases and made a detailed study of the disease, as it has occurred in our state. The most careful preventive measures are being everywhere adopted, as it presents itself.

"CHARLES S. CAVERLY.

"President of the State Board of Health
"Rutland, Vt., Feb. 24."

MEMORIAL OF DR. HENRY CUTLER BALDWIN.

The following memorial notice of the late Dr. Henry Cutler Baldwin recently appeared in a Boston daily paper:—

"Those who have been privileged to receive the ministrations of Dr. Henry Cutler Baldwin feel that in his death they have suffered an irreparable loss. He was a wonderful physician; he had an insight that gave him, as it were, a power of divination; he brought to all his immense knowledge and skill, to his observation and experience, an imagination that penetrated to the hidden all, controlled by a vigorous judgment. Some of the cures that he wrought were like miracles. His earnestness, his determination, his interest, his will, that sometimes seemed as if it would dominate fate, were all factors in his success. Those who have seen him bring the all but dead to useful life, make the dumb speak, find the concealed malignity that no one else suspected, build up sick nerves, control the insane, keep mania in check, could only feel that he was incarnate wisdom. But his personal characteristics were as valuable as his medical knowledge and skill. His gentleness, his willingness, his benignity, his courage, his power of in-

spiring confidence, were like an atmosphere. When he came in he brought sunshine with him, and care and apprehension vanished.

"From his youth he was of stainless purity and lofty ideals. In moments of relaxation there was a charming boyishness about him that was very engaging; he had a fine and delicate sense of humor; he enjoyed poetry and a good book; he was exceedingly fond of music, having a rich and pure tenor voice, and being one of the leading singers of the Cecilia Society. He had been round the world with a patient in the early years of his practice, and had visited Europe and the Pacific Coast many times afterwards. He had seen the best of art in Europe and Asia and the islands of the seas, and was really a connoisseur, although without pretensions. He was very fond of animals, devoted to his dogs, and a daring horseman.

"His home life was very beautiful, full of gentle courtesies and sweet appreciations, full of recognition of the cheer and comfort and sympathy he received. And for the rest, his charity was unbounded. There should be a host of grateful patients from whom he refused to take a penny to rise up and call him blessed. He died, at far too early an age, a victim to his absorption in his work for his fellow men, a martyr to his profession.

"HARRIET PRESCOTT SPOFFORD.

"March 5, 1915."

Correspondence

AN OLDEN-TIME NUTRITION LABORATORY.

Boston, March 5, 1915.

Mr. Editor: The following is from the *Spectator*, contributed by Addison, and well describes the "Mallade Imaginaire" of Molière.

"The following Letter will explain it self, and needs no Apology.

"Sir,

I am one of that sickly Tribe who are commonly known by the name of *Valetudinarians*; and do confess to you that I first contracted this ill Habit of Body, or rather of Mind, by the Study of Physick. I no sooner began to peruse Books of this Nature, but I found my Pulse was irregular, and scarce ever read the Account of any Disease that I did not fancy my self afflicted with. Doctor *Sydenham's* learned Treatise of Fevers threw me into a lingering Hectick, which hung upon me all the while I was reading that excellent Piece. I then applied my self to the Study of several Authors, who have written upon Phthisical Distempers, and by that means fell into a Consumption; till at length, growing very fat, I was in a manner shamed out of that Imagination. Not long after this I found in my self all the Symptoms of the Gout, except Pain; but was cured of it by a Treatise upon the Gravel, written by a very ingenious Author, who (as it is usual for Physicians to convert one Distemper into another) eased me of the Gout by giving me the Stone. I at length studied my self into a Complication of Distempers; but, accidentally taking into my Hand that Ingenious Discourse written by *Sanctorius*, I was resolved to direct my self by a

cheme of Rules, which I had collected from his Observations. The Learned World are very well acquainted with that Gentleman's Invention; who, for the better carrying on of his Experiments, contrived certain Mathematical Chair, which was so Artificially hung upon Springs, that it would weight any thing as well as a Pair of Scales. By this means he discovered how many Ounces of his Food pass'd by perspiration, what quantity of it was turned into nourishment, and how much went away by the other channels and Distributions of Nature.

"Having provided my self with this Chair, I used to Study, Eat, Drink, and Sleep in it; insomuch that it may be said, for these three last Years, to have lived in a Pair of Scales. I compute myself, when I am in full Health, to be precisely Two hundred Weight, falling short of it about a Pound after a Day's Fast, and exceeding it as much after a very full Meal; so that it is my continual Employment to trim the Ballance between these two Volatile Pounds to my Constitution. In my ordinary Meals I fetch myself up to Two hundred Weight and a half Pound; and if after having dined I find my self fall short of it, I drink just so much Small Beer, or eat such a quantity of Bread, as is sufficient to make me weight. In my greatest Excesses I do not transgress more than the other half Pound; which, for my Health's sake, I do the first Monday in every Month. As soon as I find my self duly poised after Dinner, I walk till I have perspired five Ounces and four Scruples; and when I discover, by my Chair, that I am so far reduced, I fall to my Books, and study away three ounces more. As for the remaining Parts of the Pound, I keep no account of them. I do not dine and sup by the Clock, but by my Chair; for when that informs me my Pound of Food is exhausted I conclude myself to be hungry, and lay in another with all diligence. In my Days of Abstinence I love a Pound and an half, and on solemn Fasts am two Pound lighter than on other Days in the year.

"I allow my self, one Night with another, a Quarter of a Pound of Sleep within a few Grains more or less; and if upon my rising I find that I have not consumed my whole quantity, I take out the rest in my Chair. Upon an exact Calculation of what I expended and received the last Year, which I always register in a Book, I find the Medium to be Two hundred Weight, so that I cannot discover that I am impaired one Ounce in my Health during a whole twelve-month. And yet, Sir, notwithstanding this my great Care to ballast my self equally every Day, and to keep my Body in its proper Poise, so it is that I find myself in a sick and languishing Condition. My Complexion is grown very sallow, my Pulse low, and my Body Hydropical. Let me therefore beg you, Sir, to consider me as your Patient, and to give me more certain Rules to walk by than those I have already observed, and you will very much oblige

"Your Humble Servant!"

Possibly the unfortunate plight of the gentleman so graphically described by Addison has a lesson for modern times, so that, when calculating calories for our patients, we must not lose sight of the *psychic* element and its influence on metabolism.

Yours truly,

WM. PEARCE COYES, M.D.

QUESTIONS ABOUT THE HARRISON LAW.

CAMPELLO, MASS., March 4, 1915.

Mr. Editor: I have noted your several explanations of the Harrison Bill. There are still at least two points not clear to me, viz.: If a physician "personally attends" a patient with severe "gall-stone colic" and administers a dose of morphia hypodermatically and feels the patient may need more morphia before morning or before he can again visit him, would the contingent dose or doses be included under the phrase "personally attends"?

Again, many of us have long been in the practice of personally dispensing compound cough tablets containing codein heroin, etc. The Harrison bill does not mention such contingency. Will you kindly enlighten me as to what are my privileges in such cases and greatly oblige,

Yours very truly,

J. H. AVERILL, M.D.

[NOTE.—We have answered these questions in the leading editorial of this issue of the JOURNAL.—ED.]

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING MARCH 6, 1915.

CONTRIBUTIONS.

Dr. Grace Wolcott, Boston, Mass.....	\$ 10.00
Dr. Harold E. Perry, New Bedford, Mass....	10.00
Pittsburg College of Physicians, Pittsburg, Pa.	15.00
Dr. Daniel R. Robert, Brooklyn, N. Y.....	5.00
Mrs. Charles E. Paddock, Chicago, Ill.....	5.00
Dr. Chas. S. Wright, Acting Asst. Surg., U. S. A., Portland, Me.....	5.00
Dr. E. C. S. Taliaferro, Norfolk, Va.....	30.00
Dr. William H. Wilder, Chicago, Ill.....	25.00
The Thunder Bay Medical Soc., Ontario, Can.	25.00
Garland Co. Hot Springs Medical Society, Hot Springs, Ark.....	25.00
Dr. J. Shelton Horsley, Richmond, Va.....	5.00
Dr. E. F. Dodds, Mossoula, Mont.....	5.00
Dr. George R. Little, Wichita, Kansas.....	25.00
Dr. James A. Jackson, Madison, Wis.....	5.00

Receipts for week ending March 6.....\$ 225.00
Previously reported receipts.....4386.50

Total receipts\$4611.50

Previously reported disbursements:

1625 standard boxes of food @ \$2.20..\$3575.00
352 standard boxes of food @ \$2.30.. 809.60

\$4384.60

Disbursements week ending March 6:

100 boxes of food @ \$2.30 per box.. 230.00

Total disbursements.....\$4614.60

Deficit\$3.10

F. F. SIMPSON, M.D., Treasurer,
7048 Jenkins Arcade Bldg.,
Pittsburg, Pa.

All interested in the welfare of those remaining in desolated Belgium have felt serious concern on account of the more recent diplomatic notes issued by the belligerent countries and the disquieting inferences drawn from them. From about the first of December until the present time, all the warring nations have given the American Commission for Relief in Belgium the sole right to carry supplies for civilian citizens into Belgium and have strictly respected the flag of the Commission both at sea and on land. Such assurances still exist but the restrictions rendered necessary by the urgent requirements of drastic war measures greatly increase the difficulties of transporting supplies to Rotterdam and thence to the ultimate ramifications in Belgium.

The practical significance of all this is:

First. The English government has withdrawn its monthly contribution of seven million dollars for the relief of civilian Belgians.

Second. The difficulties of transporting food from England to Rotterdam may be expected materially to reduce the shipment of supplies from individuals and charitable organizations in England to Belgium.

Third. The need for redoubled efforts on the part of Americans is correspondingly more urgent.

The following communications which appeared in the *New York Times* and other papers throughout the country March 3 and 4 are interesting and significant:

"London, March 2.—Walter Hines Page, the American Ambassador, today addressed a letter to Herbert C. Hoover, chairman of the American Commission for Relief in Belgium, explaining the diplomatic conditions under which the Commission must work.

"First. All foodstuffs must be the absolute property of the Commission for Relief in Belgium.

"Second. Foodstuffs must become the property of the Commission at the port of departure. In no other way can safety of delivery to Belgium be secured.

"Third. Foodstuffs must be transported in ships under the control of the Commission because these are the only ships whose safety the belligerent governments guarantee.

"Fourth. The distribution in Belgium must be carried out absolutely under the control of the Commission, because supplies cannot reach the people through any other channel and because the governmental guarantees hold only with reference to food belonging to the Commission."

"New York, March 3.—Mr. Linden W. Bates, Vice-Chairman of the Commission for Relief in Belgium, who is the directing head of the Commission's work in this country, at his office, 71 Broadway, was asked yesterday if he had any comment to make on the latest move with reference to the transportation end of the Commission's work. Mr. Bates made this statement:

"In connection with the reports that relief work in Belgium may be hampered by the channel and North Sea situation, it can only be said that the work for relief must go on, and we expect surely to continue to get food into Belgium. In response to inquiries made today from the State of Kentucky and elsewhere as to whether the Commission would continue to receive or buy food, I answered that it would."

The American Commission for relief in Belgium is undertaking to deliver the supplies we furnish without cost to our Committee.

Of course, it is conceivable that some of the vessels carrying supplies for the American Commission for Relief in Belgium might strike mines or might otherwise be interfered with, but that in no wise diminishes the urgent need for persistent effort to supply the necessities of life for the destitute civilians of Belgium. The greater difficulties confronting us must be met with renewed energy and increased effort.

SOCIETY NOTICE.

NEW ENGLAND PEDIATRIC SOCIETY.—The thirty-seventh meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, March 26, 1915, at 8.15 P.M.

The following papers will be read:

1. "The Management of Breast Feeding with Case Reports," Dr. C. K. Johnson, Burlington, Vt.
2. "Air and Water as Curative Agents," Dr. Roland G. Freeman, New York City.

Light refreshments will be served after the meeting.

E. M. BUCKINGHAM, M.D., *Pres.*
RICHARD M. SMITH, M.D., *Sec.*

APPOINTMENT.

Dr. Edward W. Barrett of Medford, Mass., has been appointed city physician of that community. He is a member of the American Medical Association, The Massachusetts Medical Society and the Medford Medical Society.

RECENT DEATHS.

DR. JOHN P. DENNETT, who died of heart disease on March 3 at Arlington, Mass., was born in Barnstead, N. H., in 1840. After studying dentistry at the Baltimore Medical College, he settled in the practise of his profession at Gloucester, Mass., from 1867 to 1887. In 1888 he removed to Boston where he continued in practise until his retirement in 1903. He is survived by his widow and by three daughters.

DR. ALBERT SIMON NEWCOMB, who died of heart disease recently at Schenectady, N. Y., obtained the degree of M.D. from the Albany Medical College in 1866. During the Civil War he served for a time as surgeon of the 24th New York Regiment and was subsequently medical examiner for various life insurance companies. He retired in 1903. He is survived by his widow.

DR. THOMAS HENRY MAGUIRE, who died of pneumonia on March 4 at Dorchester, Mass., was born in South Boston in 1878. After graduating from the Boston Latin School he studied medicine at the Harvard Medical School from which he received the degree of M.D. in 1900. After serving as a house officer at the Carney Hospital he settled in the practise of his profession at Dorchester. He was a member of the American Medical Association, The Massachusetts Medical Society, the Harvard Medical and Carney Hospital Alumni Associations. He is survived by his widow and by one daughter.

DR. OMAR ALPHA FLINT, a retired Fellow of The Massachusetts Medical Society, died at his home in Dracut Center, February 16, aged 71 years. He was a graduate of the University of Vermont College of Medicine in 1885. He was at one time superintendent of the Westford Reformatory and also superintendent of schools at Billerica.

DR. ALFRED MASON AMADON, formerly of Boston, died at Saranac Lake, N. Y., March 6, aged 48 years. Dr. Amadon was a graduate of the Dartmouth Medical School in 1897 and became a Fellow of The Massachusetts Medical Society in the same year. He had been in poor health for several years.

BOOKS AND PAMPHLETS RECEIVED.

President's Address delivered at the Seventieth Annual Meeting of the American Medico-Psychological Association. Carlos F. MacDonald, M.D. Reprint.

Immunological Relations of a Chicken Sarcoma, by William H. Woglom, M.D. Reprint.

The Commoner Diseases, Their Causes and Effects, by Dr. Leonhard Jores. J. B. Lippincott Company.

Nursing and Care of the Nervous and the Insane, by Charles K. Mills, M.D. J. B. Lippincott Company.

The Newer Physiology in Surgical and General Practice, by A. Rendle Short. William Wood & Co.

Physiological Principles in Treatment, by W. Langdon Brown, M.D. William Wood & Co.

Practical Sanitary Science, by David Sommerville M.D. William Wood & Co. 1915.

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Address

THE RÔLE OF THE STATE SANATORIUM IN THE TUBERCULOSIS PROBLEM.*

BY ELLIOTT WASHBURN, M.D., RUTLAND, MASS.,

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Rutland, Mass.*

IN Massachusetts, as elsewhere, the tuberculosis problem is the care, relief and cure, if possible, of those afflicted with the disease and the prevention of its spread to those not so afflicted.

In our attempts to solve the problem we have several existing agencies, which may be classified as State, Municipal and Private.

Of private agencies we have anti-tuberculosis societies and various philanthropic organizations which maintain tuberculosis camps, dispensaries and clinics, tuberculosis nurses, visiting nurses and social service workers.

Municipal agencies comprise local boards of health, municipal hospitals and dispensaries for the care of the tubercular, visiting nurses, and medical inspectors of school children.

The agencies maintained by the State include the Trustees of Hospitals for Consumptives, the State Department of Health, State Inspectors of Health, Industrial Health Inspectors, four State Sanatoria for the tubercular, the tuberculosis wards of the State Infirmary at Tewksbury, the Prison Hospital for the reception of male tuber-

* Read before the Medical Association of Northern Berkshire, at North Adams, Mass.

cular prisoners, the tuberculosis wards of the various state hospitals for the insane, and the follow-up nurse of the Trustees of Hospitals for Consumptives.

In this problem what is the rôle of the state sanatorium? How is it performing this rôle? Do the results obtained justify the expenditure of the large sums of money necessary for its maintenance and continuance?

The first state sanatorium in Massachusetts, and for that matter in the United States, was established at Rutland and opened its doors October 1, 1898. The original intent of those through whose wisdom and influence the sanatorium was made possible, was to provide a place in which early and favorable cases of pulmonary tuberculosis might, in the first instance, be restored to health and earning capacity, and, in the second instance, might become so educated at the sanatorium in the steps and precautions necessary to prevent the spread of the disease that upon returning to their homes they might act as disciples or apostles to carry the doctrine of prevention broadcast throughout the state or wherever they chanced to go.

As time went on it was found that this initial scope of the sanatorium was too narrow; that while it provided for the care of the early and favorable case it made no allowance for the care of that case which was advanced to the stage where hope of its arrest was either much lessened or was wholly lost, and which was often far more dangerous to the health of the community in which it existed than was the early case. Thus it became necessary in the absence of local facilities for the hospital care of such cases for

the state to establish and maintain other sanatoria in which cases of the disease in all its stages might be received. So that to the original two functions of the state sanatorium was added this third, the care of the advanced case, not so much with the thought of getting him well as of removing from his home and community an active focus of the spread of the disease. Rutland was still reserved, and today is still reserved, as much as possible for the reception of the early cases.

Time next demonstrated that while it was possible for the sanatorium to carry out in a satisfactory manner the first two of its functions it was not always possible to do so in the case of this third function—the care of the advanced case—because in many instances these advanced cases, placed in the state sanatoria far removed from their homes, refused to remain there and insisted upon returning to their homes. This was the not unnatural instinct of persons very ill and weekly growing worse, to be at home with their families and friends. To this fact, perhaps more than to any other, is due the establishment of local or municipal hospitals for the care of this disease, which is now mandatory upon cities in this Commonwealth and upon towns when so requested by the State Department of Health. The supreme hope is that eventually enough of these municipal hospitals will be established to care for most of the advanced cases which need hospital care and have established a legal settlement in their respective cities and towns. This would leave the state sanatoria for the care of the early cases and for such advanced cases as are “State cases” so called,—that is to say, those who have no municipal settlement, which would to a large extent do away with the present long waiting list of applicants for admission to all of the state sanatoria. Early cases are, as a rule, contented to remain in a state sanatorium, even if at some distance from home, so long as they continue to show improvement.

We find, therefore, that the rôle of the state sanatorium is of a three-fold nature,—the care and arrest of favorable cases, the education of its patients to the end that they may disseminate their knowledge of the methods necessary to prevent the spread of the disease, and the care of advanced cases, which makes possible their removal as foci of disease in their homes and communities.

How are the several functions of its rôle being performed?

In the sanatorium the care and arrest of favorable cases stands upon a tripod, of which one leg is rest, one leg is fresh air, and the third is a combination of a regulated diet and supervised exercise and work. To my mind the relative importance of the pedal extremities of this tripod is in this same order. Drug medicines play an extremely minor part in the “treatment” and unless used in connection with these three principal methods of attack ordinarily will ut-

terly fail. Nor does the physician in private practice who prescribes medicine for his tuberculous patient, and stops there, fulfill his entire obligation to his patient.

Again, the sanatorium finds that rest, air and regulated life are not in themselves sufficient to restore favorable-stage patients to health and working capacity. The co-operation of the patient himself is a highly important factor; without it the “treatment” is not given a fair chance. Thus there enters the question of the personal equation of every patient, his temperament, his mental make-up, his willingness to carry out his instructions and the sanatorium rules in regard to the details of the treatment. So that we find today in our state sanatoria that we have to deal with two very distinct classes of patients and we so classify them, the “Sanatorium or Co-operating or I’ll try” class and the “Hospital or Non-co-operating or I don’t much care,” class. Already it has been demonstrated that more recoveries and more improved cases occur in patients of the “Sanatorium” class than in patients of the “Hospital” class. Those of the first class carry out the treatment as it is outlined for them to the best of their ability. Those of the second class either are careless and indifferent in their attitude or else are openly defiant to the rules laid down for the improvement of their physical welfare. The records show that those of the second class pay physically a heavy penalty for their indifference, neglect or willfulness.

More and more it is coming to be recognized that the sanatorium has not performed its whole duty to its favorable cases when it has merely restored them to health. They need something else which is quite essential and indeed vital to their future and that is their restoration to working, earning capacity. There is grave danger that prolonged residence in the sanatorium may, as Dr. Herman Biggs has so well said, “convert working invalids into fairly healthy loafers.” Many enter the sanatorium who work almost up to the day of admission. The inherent danger exists that some may leave the sanatorium, restored to health, it is true, but by their long stay in the sanatorium rendered so “soft” so “out of training” for the task of earning their own living and, in some instances I fear, so saturated with the fixed idea that the State must take care of them, that they return to their communities unfit, physically and temperamentally, to work at supporting wages until after considerable periods of time have elapsed. I would by no means give the impression that this is true of all cases; far from it; but in some instances it does occur. In what way does the sanatorium seek to avoid this unfortunate phase? By a system of graduated and supervised work while in the sanatorium. Work is a necessary and important part of the treatment, graduated and carefully supervised work, commencing with a half hour daily and working slowly up to six or seven hours daily work of such

kind as the sanatorium is able to provide. And in this last clause we find a weak spot in our treatment and a hindrance to the effective carrying out of our plan, for the sanatorium is able to provide only a limited amount of work and of very limited kinds.

The ideal carrying out of the plan would provide for every patient work similar to that to which his ante-sanatorium life has accustomed him. This is obviously out of the question in the sanatorium and all that we can provide is light work about the wards and grounds with an occasional job at carpentering for the men and sewing for the women. We need workshops in which light manual labor of a productive kind may be carried on under the watchful supervision of an officer paid for that sole purpose.

Such graduated, supervised work not only serves to occupy the patients' minds, to relieve the tedium of their sanatorium life and to keep them contented and out of mischief, but it serves the more important purpose of putting them in such physical condition that upon leaving the sanatorium they can at once enter upon a productive and self supporting life. So I say that such work is a very essential part of the treatment.

Occasionally we find the patient who flatly states that he does not propose to do any work unless he is paid for it; that he does not intend to work for the State for nothing. For such ingrates the Trustees have provided a remedy—dismissal. The law forbids our paying for such work, although in some sanatoria in other states, notably at Otisville, New York, the plan of paying patients for work has been found to work very well inasmuch as patients are thus enabled to send money home to their families and are themselves enabled to stay longer at the sanatorium than they otherwise would be able to stay.

At Rutland, ever since its opening, the custom has prevailed of taking suitable persons on as paid workers upon their discharge as patients. Through this custom many have been enabled to live and support themselves who might otherwise have been obliged to return to unsuitable, or unhealthy, conditions of climate, home surroundings or occupations, and who in all likelihood would under such conditions have broken down or become permanent dependents or have died. This custom, although it possesses certain advantages to the ex-patients as outlined, has also certain disadvantages as far as the economy and efficiency of sanatorium administration are concerned, into which we will not go. At the present time approximately fifty per cent. of all employees upon the Rutland pay-roll were at one time or another patients in the sanatorium.

The second function in the rôle of the state sanatorium is the education of its patients, its nurses, physicians and other employees. As far as the patients are concerned this education is imparted by talks to groups of patients or by individual conferences with individual patients

but to a much greater extent by their constant observation of the methods employed at the sanatorium in the prevention of the spread of the disease from the sick to the well. Even patients of the "Hospital" class unconsciously assimilate considerable education in this manner while the majority of all patients are eager to learn not only how they themselves contracted the disease but also how they may when they leave the sanatorium instruct others in its prevention.

This educative function of the sanatorium should properly include the instruction of the medical profession. There is in our state sanatoria a magnificently neglected opportunity for physicians to perfect themselves in the diagnosis and care of pulmonary tuberculosis. An abundance of clinical material, well equipped laboratory facilities, a hearty invitation to physicians and a cordial welcome on the part of our medical staffs have not served, save in rare instances, to overcome their reluctance to travel a few miles out of the beaten paths or the instinctive dislike of things tubercular which extends even to the medical profession itself. This opportunity is freely offered to the medical profession. It is seldom improved.

The third function, the care of advanced cases, is fulfilled by the provision of proper medical care for such cases and by making their last months and days as comfortable as possible. These are the open, active cases, many of them alternately ambulatory and bed cases for long periods of time, which are dangerous to the health of their homes and communities unless they can be cared for in a state sanatorium, a municipal tuberculosis hospital, or in their own homes under proper and competent guidance which is often impossible and oftener impracticable.

In the performance of this function the sanatorium is handicapped by the fact already mentioned of the difficulty in keeping advanced cases in a state sanatorium, far from their homes, when they find that they are gliding down hill physically. This desire to return home plus the fact that many cities and towns have no adequate facilities for the reception and care of such cases results in the return of these patients to their homes where in many instances the care afforded to the patient and the protection rendered to his family are neither adequate nor satisfactory. Thus in a measure this function of the sanatorium is defeated and the State has wasted time and money on such patients to the detriment of more favorable cases who have been kept out of the sanatorium because the beds were filled.

Still again we have to deal with that class of dangerous consumptives who have been styled the "incorrigible," the "unteachable" the "wilfully careless" consumptives. These often appear to care for no one but themselves and sometimes not even for themselves. These are they who through ignorance, wilfulness or just sheer "cussedness" neglect or refuse to take any

necessary precaution, who wilfully and flagrantly violate the spirit and the letter of all sanatorium laws and rules and of similar laws in their own communities and homes, who through the abuse of alcohol or otherwise, even in the sanatorium, deliberately offset any physical good that the sanatorium can possibly offer to them. These are thirty-third degree members of the "Hospital" class. What of them? We cannot hold them in the face of their violation of our rules; we have to discharge them; usually we are glad to see them go. And yet of all consumptives they are the greatest menace to the public health. They drift from one sanatorium to another until the doors of all have been closed to them because of their own faults and mis-behaviour. No law, or at least none so plainly written that the average local board of health dares to enforce it, exists for the compulsory isolation of this type of patient. The legislature in its wisdom has repeatedly refused to pass such a salutary measure and yet without it much of the effort of the Commonwealth in the tuberculosis problem inevitably comes to naught. Furthermore, there is no place in which these patients may be so isolated. The sanatorium cannot hold a patient against his will. We have no option in the matter. So we find ourselves and you in your communities find yourselves with no real remedy against this very real and dangerous phase of the problem. Under existing conditions money expended on these individuals is thrown away. It is patients of this class who make the life of the superintendent of a sanatorium anything but a bed of roses. The very patients of all patients who ought to be held we are obliged to discharge back in their communities in order to preserve sanatorium order, decency and discipline.

Now is all this worth while? Does the Commonwealth receive an adequate return for its expenditures? Is sanatorium treatment worth while?

How shall we estimate the results except by the number of persons restored to health and earning capacity who return to their communities fit to resume their positions as productive members of the body politic; and by the educative influence which they exert upon those communities; and by the number of foci of disease removed from homes and communities.

With numerical statements I shall not bore or confuse you. We have them, however, and they bear out in every way the statement that the results do justify the expenditure of the large sums necessary to maintain and continue state sanatoria in Massachusetts.

In a paper appearing in the BOSTON MEDICAL AND SURGICAL JOURNAL under date of March 19, 1914, and the caption "Is Sanatorium Treatment Worth While?" Miss Gertrude L. Farmer of the Social Service Department of the Massachusetts General Hospital studied the results of sending 419 patients who appeared at that department to the state sanatoria. Her conclusions, in part,

somewhat changed as to wording but not in spirit or intent, follow:

"Owing to the limited number of beds provided in the Commonwealth for the care of its consumptives it is apparent that the State Sanatoria have so far played a relatively small part in caring for individuals. Their educative value cannot be computed. The discharged patients have carried the gospel of hygienic living to thousands. The day seems far distant when state care for the phthisical patient will be so organized that private societies can withdraw from the field. Only in few, if any, localities is municipal work able to fill the gap."

The gradual and continuous establishment of municipal hospitals and dispensaries, the beds in which already total almost 1500, will as time goes on slowly relieve the strain upon the state sanatoria and in a measure will fill the gap to which Miss Farmer alludes. Nor should we overlook the value of the work which has been done by the follow-up nurse employed by the Trustees of Hospitals for Consumptives in relation to patients discharged from the sanatoria.

Many have been restored to permanent, full time earning capacity; many have been restored permanently to part time working capacity; many others to temporary working capacity in full or in part; many others have been enabled to prolong their days on earth even if unable to resume productive labor; still again the last days of many more have been made comfortable and pleasant. The benefit to community health by the removal of inherently dangerous foci of disease through their isolation in state sanatoria cannot be adequately estimated although it must be great.

It is true that many cases upon returning to their homes fail to hold the gain which they made at the sanatorium; it is true that many are obliged to return to the sanatorium a second or even a third time; it is true that in the case of "incurables" most of our time, effort and money is wasted. On the other hand it is also true that many of these physical lapses are the direct result of improper home conditions, or of unhygienic surroundings in places of employment, or in the majority of instances, of the faulty spirit of the patient himself in neglecting to carry out at home the principles of treatment which he learned at the sanatorium. The sanatorium is not willing to assume the responsibility for such lapses under such conditions nor should they be charged against its account in the determination of its real value.

Beyond question restoration to health and working capacity is of great value and likewise is the removal of foci of dangerous disease but, it seems to me, beyond both of these is the importance of the key-note which Miss Farmer sounded, that discharged patients have carried and continue to carry to unknown thousands the gospel of the method of prevention of the spread of this most pitiful disease.

These three benefits bestowed by the sanator-

ium constitute the state's recompense for its expenditures and warrant the continuance of its efforts to relieve the burden of tuberculosis in this Commonwealth in spite of the fact, that cannot be denied, that the money, time and effort expended upon the "tramp," "malicious" and "incurable" types of patients, who obtain entrance to the sanatorium and pull down its standards, are absolutely wasted, which will assuredly continue to hold true until some other provision is made for such types.

Original Articles.

REMARKS ON THE DIAGNOSIS AND TREATMENT OF PULMONARY TUBERCULOSIS.*

BY BAYARD T. CRANE, M.D., RUTLAND, MASS.

DIAGNOSIS.

It was no less an authority than Sir William Osler who said that the family physician is a most important factor in the eradication of tuberculosis since he is the first to be consulted when illness arises.

This fact will stand extremely strong emphasis. In fact, is there a more important single principle in the entire tuberculosis situation today? In the future, compulsory examinations of a large part of the public may be adopted—examination of pupils, students, teachers, factory employees, club and lodge members, city, state and national employees—whereby the responsibility for recognition of this disease may be placed upon special agents chosen for this work, but until this or some other innovation is adopted, the indisputable fact remains that in this country the family physician, whether he wishes it or not, whether he realizes it or not, stands almost alone in the front rank, opposing the onslaught of this disease. Surely this is no light responsibility!

The profession in this State has improved in ability to diagnose early tuberculosis since the establishment of public sanatoria, albeit errors in diagnosis and delays in diagnosis are still rampant. Upward of four thousand (4000) persons die annually in this State of this disease and it is not proper to fail to realize that some of these deaths are due directly to the errors and delays in diagnosis.

The general practitioner is in an unenviable position—in fact he is, in my opinion, in an irrational position in that it is his expected task so to watch over the populace that he shall detect this disease (and that always early), freeing humanity thereby of its most dread scourge.

* Read at a meeting of the Worcester District Medical Society held December, 1914.

but he must do this by means of the bare diagnostic powers acquired during a general medical education.

We will not deny that the profession has made great advances in scientific accuracy in many lines, nor that it has many glorious conquests to its credit, all within recent years, nor will we deny a great adaptability and tolerance to changing conditions, but we can not justly expect the general practitioner to acquire and display expert medical knowledge in all branches of his activities, nor can he be expected to display refined diagnostic skill in branches which were not appropriately taught him in his student days and in which, since graduation, he has not had the necessary opportunities to perfect himself.

It seems to me that those who have "berated the general practitioner in season and out of season for his dereliction" have been too optimistic about the ease of acquiring the necessary skill to detect early tuberculosis, forgetting that they themselves spent months, and more usually years, in intimate contact with the disease before they unlearned the mis-conceptions they had previously acquired and before they considered themselves dependable to make an early diagnosis. Are we not, in short, straining for the impracticable and perhaps unattainable when we attempt to train the general practitioner, with his multiform duties, invariably to detect early tuberculosis?

I take it that it is hardly necessary to reiterate the profound advantages in material economy, and in human happiness, which result from early detection of this disease in comparison to detection in its later stages. I will merely state that seven times better results are obtained in incipient cases than in the far advanced cases, and four times better results are obtained in incipient cases than in the moderately advanced cases. It may be properly asked, "By what means, then, other than by the general practitioner, may the general detection of early tuberculosis be made?"

The reply is that no means yet employed can guarantee at once such general, invariable detection, but in some way specially trained physicians must come into intimate contact with the masses. As it is now in this country, examinations are made only with the voluntary consent of the examined and, in the case of the illiterate and uneducated classes, the cause of delays in diagnosis are largely due to this same illiteracy, lack of education and attendant poverty. By some method, then, it would seem necessary to make skilled routine examination compulsory among the illiterate and uneducated classes at least. This suggestion opens up a tremendous field for the operation of ingenuity, influence, and aggressive work on the part of the enlightened medical profession. Massachusetts, to hold its prestige, must hasten to take this advanced view.

Lastly, the general medical public must ac-

knowledge that modern tuberculosis has created a new order of things and that old principles are not comprehensive enough now.

The eradication of this social scourge must depend, as far as the profession is concerned, upon early detection *at any cost*, and then upon an insistent, aggressive mastery and thorough control of the patient, also *at any cost*, until he is wholly well or at least until perfectly trained as to his responsibilities and power of infecting others.

To carry out these requirements, the medical profession must possess courage, insight, industry, and at times, self-sacrifice.

Hazy doubts in diagnosis should be cleared away promptly by consultations, and if a complete control of the patient is not possible at home, he must be sent away where sufficient control can be had.

What are the causes of failure to detect tuberculosis?

They are the same cases that have existed from the outset, though it is undoubted that they are gradually diminishing. They still consist of

- (1) Delays in making diagnosis, and
- (2) Errors in Diagnosis.

DELAYS IN DIAGNOSIS UNTIL THE DISEASE HAS PASSED BEYOND THE EARLY STAGES.

The delays arise most often, I believe, from inability to detect the slight changes from the normal in physical signs and symptoms, but they also arise from a failure to apply the findings to their logical place. It is a case of the absence of a clear, accurate mental picture of tuberculosis in its outset. To be able to detect early tuberculosis requires a talented use of the stethoscope, a keen ear, and a power to discriminate between the normal and a slight variation from the normal in many bodily functions.

It is difficult to make general interpretations on this subject, but it is justifiable to state that there still seems to be an adherence to the older traditions and teachings about "Consumption" that existed before sanatoria were established, and we continue to make our diagnoses on such clinical symptoms as correspond and co-exist in the types of tubercular lesions which we had pointed out to us in our student days. In those days tuberculosis was taught chiefly in the pathological and post-mortem departments. The clinical histories that corresponded with those cases so often mentioned high temperatures, emaciation, hectic flush, profuse expectoration, night sweats, and cavities that *now* our minds are too prone to cling to those symptoms as belonging to all cases of tuberculosis.

But such is radically erroneous. Our early favorable cases usually present not one of these symptoms. These symptoms arise usually as the lung begins to break down and are generally indications of a late stage or of an acute process.

Truly incipient cases have "slight infiltration limited to the apex of one or both lungs, or a

small part of one lobe; slight or no constitutional symptoms (including particularly gastric or intestinal disturbance or rapid loss of weight), slight or no elevation of temperature or acceleration of pulse at any time during the twenty-four hours; expectoration small in amount or absent; tubercle bacilli may be present or absent and there are no tuberculous complications."*

Another cause of delay in diagnosis is the tendency to lean upon the laboratory report, assuming that a positive sputum report is essential. Speaking at random, far less than one quarter of the cases admitted to sanatoria require a diagnostic sputum test, because the clinical history and physical signs are sufficient generally in the hands of an experienced tuberculosis practitioner to make the diagnosis.

It seems puerile at this date to reiterate that the patient's clothing should be removed to the waist during examination and that each spot should be auscultated after a forced cough followed by full inspiration and expiration.

Among the gross, more readily elicited diagnostic signs, occurring in many favorable cases but rarely in the really incipient, is a lack of expansion on the affected side. To elicit this, the patient should be exposed directly in front of a single source of bright light and asked to take a full breath while sitting or standing with hands in the lap and knees not crossed.

The excursion of the angle of the scapula and of the nipple on the affected side will be often appreciably diminished. This sign is not to be depended upon except to suggest or corroborate tuberculosis, and naturally is not as marked in early as in later stages.

Another comparatively easily elicited sign is an increase of intensity of the respiratory murmur over the affected area. A still more accurate gross sign is the more high pitched or intense whispered voice over the affected area.

The use of hypodermic tuberculine for diagnosis should not be undertaken by one who has not the ability to make a skilled physical examination.

ERRORS IN DIAGNOSIS.

The commonest errors of diagnosis are Bronchitis, Pleurisy, "Grippe," "Bleeding from the throat" and "Debility." In regard to the first (perhaps the most common) I would advise one invariably to be skeptical of the diagnosis of a benign bronchitis, and more especially, to assume that unilateral "bronchitis" is tuberculosis.

"Pleurisy" in most cases accompanies parenchymatous involvement or is an independent tuberculous process.

So-called "Grippe" frequently ushers in frank tuberculosis, and "bleeding from the throat" is so nearly invariably due to tuberculosis that the invariable first assumption should be tuberculosis. It may appear as mere specks, as a diffused pinkish discoloration of a small mass of sputum,

* Vide: Classification adopted by the National Association for the Study and Prevention of Tuberculosis and by the American Sanatorium Association.

as a few bright streaks in the sputum, or as a chocolate colored or blackish, mottled mixture. These small blood spittings are often a most fortunate episode in the case as they are quite apt to disturb the patient sufficiently to rouse him to see a physician.

Some of the more rare symptoms of pulmonary tuberculosis are dyspnea, mental irritability, languor and weariness. Psychasthenia often develops as tuberculosis appears. I would urge a sharp lookout for this condition, more particularly in women, so that such treatment as may be instituted will be in harmony with this condition and so that the patient's comfort will be most fully protected. The psychasthenia may take the form of fears, apprehensions, depressions, or hallucinations, and in these cases isolation and bed treatment, individualization and an harmonious environment will be very valuable.

TREATMENT.

It may be well to take a general review of events as they have occurred in the tuberculosis field (chiefly in this state), calling attention to progress and failure so that we may the more wisely deal with the problems of the future.

In 1885, Dr. Edward L. Trudeau established the Adirondack Cottage Sanitarium, thereby introducing sanatorium treatment into this country. The modern kind of tuberculosis activities in this country may be said to have begun there and then. This noble man was a worthy sponsor of a great cause.

In establishing his institution in the mountains, he adopted the theory of the beneficial effects of altitude and of inland climate in the treatment.

In February, 1891, Dr. Vincent Y. Bowditch established a sanatorium in Sharon, Mass., at a general elevation of about 300 feet, and achieved remarkable success. Influenced chiefly by this success, the State of Massachusetts elected to try the experiment of treating favorable cases of tuberculosis under its own supervision. It chose a site at an elevation of about 1200 feet in Rutland and appointed Dr. Bowditch and others to its medical staff.

This State Sanatorium, doing pioneer work, achieved such success and popularity that a country-wide policy of establishing State Sanatoria soon followed.

But after a few years of effective operation, outside words of criticism and disappointment were heard. The criticism was aimed at the incompleteness of the benefit received, or, in other words, to the tendency to relapse which some patients showed after discharge from the sanatorium, and incidentally the climate and altitude and other things took their share of criticism. The criticism accumulated and finally assumed the proportion of definite counteracting and corrective propaganda.

Home treatment, even in crowded cities, in congested quarters was enthusiastically hailed.

Day camps were established in many large cities, regardless of altitude and climatic conditions. *Tuberculosis classes* were instituted in Boston and adopted in many large cities of other states. *Tuberculosis dispensaries* took on new expansions. Even the State Tuberculosis Commission, then reorganized, showed the existing discontent at sanatorium results as realized at Rutland by using considerable pressure to utilize the then-building three new state institutions for the reception and treatment of favorable cases on a par with Rutland, though these institutions had been located with slight regard to climatic advantages, but chiefly so that they might be near populous districts.

At about the same time, to one who had followed the trend of the annual meetings of the National Association for Study and Prevention of Tuberculosis from the outset, a lull of enthusiasm became apparent in its meetings.

All these conditions were tending to establish a real belief that sanatorium treatment was not as valuable as it had been claimed by the originators and that non-institutional treatment was as good, and that all climates and all kinds of climate were equally valuable in curing tuberculosis. This belief prevailed for several years. Since then, however, class treatment has been largely abandoned, day camps have fallen from grace somewhat and some, who had enthusiastically endorsed home treatment, have since become equally enthusiastic over the great curative power of the bracing, clear air of hills and mountains.

These facts are significant and can all be explained readily. The corrective propaganda were tried out and found less capable of producing results than sanatoria had been.

It is today to be noticed wherever experienced tuberculosis workers of all kinds gather (social workers, district nurses, dispensary physicians, city physicians, clinicians and sanatorium workers) that there is a prevailing general conviction *that patients should first go to a sanatorium* because of the better chance of cure there obtained and because of the more thorough health education there received. In other words, *good sanatoria were never so popular as today*. Stated in other terms, it is now recognized quite generally among tuberculosis workers, after impartial trial of various agencies, that sanatoria are fixtures as long as tuberculosis exists, and that in the great preponderating majority of cases, those patients are far more fortunate who can have the advantages, during a part of their treatment at least, of a good sanatorium. Before long the same conviction may be expected to take possession of the profession at large, and coincidentally, I venture to say, will the tuberculosis death-rate show a more rapid decline.

It is not easy to explain convincingly the reasons why institutional treatment produces better results than home treatment, yet an analysis of the individuality of the disease will reveal some peculiarities which certainly would suggest the

probability that institutional treatment would be preferable.

1. For instance, the disease is *subtle* and *insidious* and is not accompanied with marked bodily distress. Hence the patient is apt to overlook a backsliding in his health until it has become marked and serious, but if he is in an institution he is under the frequent observation of nurses or physicians who are trained to detect slight variations of symptoms.

2. *Regularity of routine* seems to be a valuable element of treatment and it is quite apparent that a home can rarely be systematized to operate with the precision of an institution.

3. There is a large element of *effort* and *task* about the treatment when properly pursued. It is apparent that with the family at hand, the patient may be often excused from the effort when an institution would insist upon it.

4. At home the patient is bound to be brought in contact with *petty cares* and *annoyances* of which he would probably be ignorant if he were away.

5. The treatment is a *tedious, long continued* process, during which the fund of moral support, wise counsel and patience of a family may give out.

6. The treatment is *progressive* and requires frequent alterations of orders by the physician, but if at home the patient, when feeling well, is apt to consider a visit from the physician as an unnecessary expense.

7. *Education about the disease* by observation of other patients is to be had in an institution and not when taking treatment alone.

These are some of the reasons of preference for sanatoria. In a small percentage of cases, temperament is such that institutional treatment must not be thought of.

Sanatoria, then, stand as the chief means of treatment of the disease, and yet it is all too apparent that sanatoria can never eradicate the disease alone. All the combined methods of attack upon the disease, including better housing, cleaner cities, public parks, pure water supply, open air schools, out-door sleeping, shortened hours of labor, cleaner milk, hospitals for incurables, fumigation of apartments, prohibition of spitting, etc., etc., have made a strong impression, but apparently the greater part of the task still remains undone.

To return to the subject of the sanatorium patient, I would reiterate that the extent of control of his disease on his discharge (with consent) is limited to an *arrest* but not a cure. The sanatorium at best has subdued, but not eradicated his disease and has educated him into better methods of living, but the purely sanatorium duty stops there. What happens to him after discharge cannot rightly be the responsibility of the sanatorium.

In many cases the disease relapses after discharge. *The after-care of the consumptive is the weakest point in our whole scheme today* and

little has been accomplished to improve this defect.

Shall the patients who came from unsanitary homes and whose previous work is now unsuitable for them, be sent to work colonies, supported by the state, for physical training to fit them for the requirements of the general labor market and for manual training in more healthful occupations?

Until some comprehensive solution of the after-care problem is made, it is well to keep in mind that arrested and non-arrested cases are returning into our midst with need for wise medical counsel.

The treatment of a curable case of tuberculosis may be divided into two distinct stages:

In the first we must create and maintain such a form of living by the patient as will build up a controlling resistance to the tubercular toxine and establish a normal degree of nourishment, by means of such a readjustment of his habits and of the actions of the leading organs of his body as will maintain the toxine resistance and normal nourishment even under moderate activity. When this is accomplished the disease is arrested. In practice this will require an aggressive, alert, patient, optimistic resourceful, skilful action on the physician's part. This may well be called the sanatorium phase of the treatment and is well comprehended and indicated in the word "*sanatorium*," which comes from the verb "*sanare*," to heal.

The second stage of treatment is quite different. It is planned on the principle to hold ground already gained until cure is established or arrives. It is less aggressive than the first phase and is more accurately a problem of *prophylaxis*. Its chief aim is not to improve on what has already been accomplished in improved habits and bodily functions, but to prevent the reappearance and re-establishment of any form of bodily overtax.

The first stage will require of the physician ability to note and interpret the changing physical signs and symptoms, and a knowledge of the influence of rest and exercise upon the pathological process, a knowledge of foods and of the action of air upon the body.

The second stage will more particularly require a knowledge of the normal in housing, hours of work, sanitary conditions and food, and incidentally will reveal the fact that society, though partly responsible for the patient's illness, yet adheres to such prejudices against him that he faces severe restrictions and finds few avenues for the use of his talents.

The one who assists in this prophylaxis of tuberculosis must do his part then in social uplift work, but so intertwined is tuberculosis with all the great human problems, of the individual and of the community, that changes of great magnitude, entailing colossal outlay of money and effort, must doubtless be wrought before this scourge shall be cast off.

Consider alone the outlay necessary to bring housing conditions up to a healthful point in our cities. More than almost any other disease tuberculosis possesses social phases, and the physician who comes into even occasional contact with it may well pause to consider whether in his handling of a case the obligations to society are properly considered. We have the opportunities and abilities to see clearly the basic causes of this far-reaching scourge. Our position has enabled us to trace out the human faults and deficiencies that produce the thing. No other profession, no other group of people, knows so well when humanity begins, by its omissions and commissions, to endanger itself with this trouble. Ours being the first eyes to see the impending misfortune, so also is ours the duty to warn early against the dangers,—to counsel in private and public the truths we know, to teach, to preach, to educate,—to create, in short, public enlightenment.

Let the profession realize that the pioneer tuberculosis physicians have known well what they needed in state institutions to make success, but that they must wait for the consent of legislative bodies. Let us realize that slow progress can often be traced to bad politics and we will see clearly what the remedy is.

Help to disseminate the information that able physicians often shun public institutions because of the dangers and futile obstacles therein.

Able hospital superintendents deserve co-operation and support from the profession. The percentage of recoveries being dependent greatly upon a complete authority and control of patients, it follows that coöperation by the profession with the hospital staff will assist to increase recoveries by establishing confidence and co-operation between patients and staff. We should attempt to aid the staff to have untrammelled authority and power.

Let us have a policy in regard to our city and county tuberculosis hospitals. These are chiefly isolation places, and the management will require chiefly palliative measures until the end. But some curable cases may enter here, and for them an aggressive, particular routine must be instituted or they may fail to recover.

MORTALITY AFTER PROSTATECTOMY, BASED ON A STUDY OF 229 FATAL RESULTS.*

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AND

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The observations which this paper presents are obtained from the consideration of 106 fatal cases following prostatectomy contributed for our

* Read at the annual meeting of the American Urological Association in Philadelphia, 1914.

study by members of the American Urological Society, from other cases already in print and from a paper on Mortality after Prostatectomy published by us in 1906.

As many of the reports cover cases dying before our modern methods of investigation became common and others have been made up from incomplete records, the totals of the different observations vary. It may be regretted that this paper does not cover the percentage of recoveries as well. Possibly this may be taken up at another time, but this paper will be confined to a study of fatal cases and their relation to the conditions which existed before operation.

We have discarded the reports on cases operated under fifty years of age as likely to be complicated by acute infection of the urinary tract and by cancer. One hundred and sixty cases arranged by decades with the cause of death appear in Table I.

Table I

	50-59	60-69	70-79	80-89	90	Totals	Cases from Previous Paper	Totals
Uremia	7	15	16	3		41	25	66 30%
Sepsis	1	9	8	1		19	6	25 11%
Hemorrhage	3	10	13	4		30	11	50 22%
Shock	1	3	5			9		
Embolism	3	12	7	2		24	3	27 12%
Pulmonary	1	3	5	4	1	14	8	22 10%
Cardiac	1	4	6	1		12	9	21 9%
General Debility		3	2	1		6	1	7 3%
Acidosis		1	1			2	0	2 1%
Accident	1	2				3	6	9 4%

It appears that there were more deaths from uremia than from any other one cause. We have listed the deaths from sepsis next because some deaths assigned to this cause occurred so early as to suggest the influence of renal inadequacy in producing so early fatal results. Legeu goes even further and in a recent paper says: "Minute investigation of the conditions under which prostatic patients die compels us to attach more and more importance to renal insufficiency. Death from uremia fully explains the accidents currently ascribed to embolism or pulmonary complications which in reality only play a secondary part. It would seem that alongside and vastly more than the liver, lung and heart it is the kidneys which most frequently kill our patients after operation and which furnish the underlying cause of many of the pathological troubles in those who recover."

The next most frequent cause of death is hemorrhage and we have listed shock after this because the two are so often associated and because some patients who were said to have died of shock lived for twenty-four hours or more before the end came.

It is our opinion that a reduction in mortality from these two causes is possible and that a dis-

tinct improvement over the results of ten years ago is already here.

The large number of deaths between sixty and eighty corresponds with the larger number of patients who were operated in these decades. Our previous paper, based on 816 operations by many different surgeons, showed that 80% of all prostatectomies were done on patients in these two decades. It may be interesting to reproduce the table from that paper showing the mortality in the different decades.

= TABLE II =

	50-59	60-69	70-79	80-89	90
Number of Patients	120	422	240	24	2
Percentage of Fatal Operations	5.8%	9.5%	15%	33%	50%

This table was made up from ninety-one fatal results in the work of many different operators with a general mortality of ten per cent.

DURATION OF OBSTRUCTION.

There are 100 cases in which the duration of obstruction can be compared with the cause of death.

Table III

	Duration of obstruction up to one year	One to three years	Over Three years.
Uremia	9	5	15
Sepsis	5	1	4
Hemorrhage	5	7	13
Shock			
Embolism	5	2	7
Pulmonary	0	6	3
Cardiac	1	1	6
General Debility	0	1	2
Accident	0	2	0
Total	25	25	50

The larger proportion of deaths from uremia, sepsis and embolism in patients operated within a year of obstruction, suggests that patients with impaired renal and circulatory apparatus are more likely to seek help early than those who have no disabilities outside of the bladder.

PREPARATION UNDER HOSPITAL CONDITIONS.

There are 101 cases in which the preparation under hospital conditions can be compared with the cause of death.

TABLE IV
PREPARATION

Cause of Death	Two days or less 44 cases	3-7 Days 30 cases	8-14 Days 20 cases	Longer 10 cases
Uremia	16 = 37%	9 = 30%	5 = 25%	3 =
Sepsis	6 = 14%		3 = 15%	1
Hemorrhage	7 = 16%	8 = 27%	4 = 20%	1
Shock		1 = 3%		
Embolism	9 = 20%	3 = 10%	5 = 25%	1
Pulmonary	1	3 = 10%	2	
Cardiac	3 =	9 = 10%	1	4
General Debility	1			
Acidosis				
Accident	1			

The diminishing percentage of deaths from uremia, as we compare the immediate operations with those delayed is certainly suggestive of the desirability of preparation before operation.

Along this same line it appears in Dr. Hugh H. Young's monograph of 1906 that while some few of his patients were operated within a day or two of admission, there was an average delay of more than eighteen days. You will remember that he reported seven deaths in a total of one hundred and forty-five cases.

PRELIMINARY DRAINAGE.

Thirty-six of these fatal cases were drained by catheter and ten by cystotomy before the prostatectomy. Drainage varied from one to ninety days. Fifteen were drained less than one week.

= TABLE V =

	Catheter Drainage Cases	Cystotomy
Uremia	10	5
Sepsis	3	1
Hemorrhage	8	1
Shock	2	
Embolism	7	1
Pulmonary	4	1
Cardiac	1	1
General Debility		
Acidosis		
Accident	1	

These cases show nothing except that the drainage used was not adequate to protect them from the usual proportion of deaths from uremia, hemorrhage and embolism. It is a question whether drainage for less than a week makes any material difference in the condition of the bladder and kidneys.

If we are to drain before operation we should do it for a certain effect rather than for a certain number of days. If there is any reason for using drainage in preparation of patients that reason should be removed before drainage is given up. The replies to our question are too few to show anything as to the comparative value of long and short preliminary drainage.

FUNCTIONAL TESTS.

The results of functional tests are reported in twenty-six fatalities.

= TABLE VI =

	Cases with Functional Tests	General Percentage
Uremia	10%	30%
Shock and Hemorrhage	10%	22%
Embolism	23%	12%
Sepsis	4%	11%

The functional tests reported are phenolsulphonephthalein and urea percentage, the latter in two cases only.

We regret that the number of fatal cases in which some adequate test of renal function was

made is so small as to be no test of the value of any of these recent methods. It does appear, however, that the percentage of deaths from uremia and sepsis is smaller among cases tested than among the general run of cases. We believe that the rapidity with which the phenol-sulphonephthalein appears in the urine is of great value in estimating the progress made by a patient during his days of preparation. The new ferment which makes the estimation of urea in the blood and urine comparatively easy will doubtless bring the "uremic constant" into frequent use on this side of the ocean. No report of its use has come among these cases.

The hemoglobin test is reported in eighteen cases only. Four having hemoglobin of 80% or better died of hemorrhage; six with hemoglobin, between 70% and 80%, of uremia; four with hemoglobin of 80% or better died of embolism.

The blood pressure is given in thirty-one cases. Of those with pressure of 200 or over two died of uremia, one of hemorrhage and one of sepsis. Of those with pressure of 140 or below three died of hemorrhage, one of embolism and one of cardiac disease.

The presence of edema is mentioned in only four cases.

In nearly all the cases dying of hemorrhage the mental condition is given as "Good" or "Fair." In the cases dying of uremia the mental condition is given as "Good" or "Impaired."

The effect of "clean bladder" in twenty-six cases is not apparent, one case dying of sepsis which is not far from the general proportion.

ANESTHESIA.

The anesthesia is reported in 106 cases.

Table VII
= Anesthesia =

	Ether	Spinal	Nitrous Oxide	Chloroform	Local	Gas Ether Chloroform
Uremia	15	6	4	6	2	
Sepsis	4	1				
Hemorrhage	14	1				1
Shock	5					
Embolism	17	1			1	
Pulmonary	5	1	4			
Cardiac	3	2	1	1	1	
General (Debility)	2	2	1	1		
Acidosis			1			
Accident	2					

The proportion of deaths from uremia under chloroform and spinal anesthesia is larger than with the other anesthetics which may or may not be due to using these in the worst cases. Certainly neither anesthetic gives perfect security against death from this cause.

The causes of death as related to the type of operation appear in the following table.

Eleven fatalities following the two stage suprapubic operation, and seventeen following the transcapsular perineal operation are included in the above tables as both show the usual causes of death and do not materially alter the above figures. If we may regard the deaths from

TABLE VIII

	Suprapubic	Perineal
Uremia	18 = 22%	19 = 31%
Sepsis	4 = 5%	8 = 13%
Hemorrhage and Shock	16 = 21%	17 = 28%
Embolism	13 = 20%	7 = 11%
Pulmonary	9 = 12%	6 = 10%
Cardiac	8 = 10%	2 = 3%
General Debility	4 = 5%	
Acidosis		1
Accident	2	

uremia, sepsis, shock and hemorrhage as being more likely preventable than those from other causes, it is worth noting that 48% of the deaths following the suprapubic route were from these causes, which may be compared with 72% in the perineal fatalities.

GENERAL CONSIDERATIONS.

The three cases dying of accident were one from embolism following air distention of the bladder, one of sudden death with ether anesthesia while the patient was in the Trendelenburg position, and one from distention of the abdominal cavity by irrigating fluid used after the operation.

Under the heading of general debility we have included one case said to have died from acute dilation of stomach.

COMMENTS.

"I am satisfied that air absorbed through the bladder walls or through a prostatic lesion was the cause of this man's death. I will never use air distention again."

"It is my opinion that the pressure of the perineal drainage tube on the purulent open vein field of the prostatic urethra forced the pus with blood clot into the veins on getting the patient out of bed, and this was followed by an embolic pneumonia and death."

"This patient was operated in a town nearby. I left the day after operation. I have since made it a rule never to operate away from home save in emergency."

"In talking with the various men doing this kind of work, I find that some insist that they will never operate outside of the hospital. I have seen cases in farm houses where something had to be done for relief immediately and where the suggestion of removal would not be listened to. I question very much whether some one will not have to do certain cases outside the hospitals."

"It is to be noted that I have never lost a private patient. All my deaths have occurred in hospital cases in which I was unable to secure the sort of pre-and-post operative treatment upon which I cannot but think so much depends in the question of death or recovery."

SUMMARY.

The greatest danger in the operation of prostatectomy is death from uremia or from condi-

tions closely associated with it. After examining a patient we should be able to say that he is a good, fair, or poor risk with reference to this condition. If he is not put in the first class, we should try to put him there before operation or at least get him as near there as possible. Three fatalities from uremia reported to us in patients who had been carefully treated for more than two months, show that we cannot always succeed, but the percentage of deaths from uremia among the cases operated within two days was 37%, while the percentage of deaths from the same cause among patients who were observed long enough to have functional tests made was 19%.

The second great danger in this operation is death from hemorrhage and shock. Is it possible that in our desire to avoid shock by doing a rapid operation, we have sometimes produced shock and hemorrhage by doing a needlessly rough operation? There are reasons in the reports sent us for thinking that this may have had some influence. It is fair to say that a patient whose hemorrhage has been thoroughly controlled seldom starts bleeding again unless the gauze or other means of control is removed too soon. Possibly some operators have been disappointed at nature's failure to stop a leaking vessel which they had failed to close before the patient left the table.

The third serious fatality is embolism, which may also be the cause for some pulmonary complications.

How can we avoid at least a portion of this risk?

Blood vessels are necessarily torn and left untied. The wound is in an infected region and constantly bathed in a septic fluid. A larger raw area is left exposed to this contamination than in almost any other operation. Constant irrigation does not prevent embolism. It occurs when perineal, urethral and suprapubic drainage tubes are used and after both operations. Is it possible that our well meant drains are responsible for some of these emboli as suggested by Dr. Barnett?

Suprapubic tubes long enough to rest in the prostatic cavity and perineal drains reaching the same distance are well placed to disturb the clots in the surrounding veins as the patient moves about. Is there any need of tubes after either operation? There will be no back pressure of urine with a good sized opening in the bladder and we would welcome an early closure of the incision we make, provided the patient does not suffer thereby.

The deaths under the heading of Cardiac and General Debility are many of them uncertain. Some with autopsy would have been called uremic and some embolic. Some apparently represent the general giving out of the machine after the accident of prostatectomy and some a myocarditis.

It is not yet possible to say what the mortality of the operation should be because operators

have such varied methods in their selection of cases.

A surgeon who believes that every old man suffering from prostatic obstruction is entitled to a chance of operative cure will have a higher mortality than the surgeon who refuses the desperate cases.

One skilful operator says privately that by selecting his cases he has done over ninety prostatectomies with one fatal result, and in contrast there is a mortality in some excellent hospitals of 20% or more. It is certain that the mortality rate is lower than it was ten years ago and a large credit is due Drs. Rowntree and Geraughty's study of color elimination in its relation to renal competency, for the improvement.

Before this work appeared many of us knew the wisdom of preliminary drainage but now we have a measure of the time necessary for this. Until some better method is made applicable, no prostatectomy should be done without testing the capacity of the kidneys for color elimination, using some chemical at least as reliable as phenolsulphonephthalein. By this intelligent delay many cases can be transferred from the desperate to the reasonably safe class of risks and those truly inoperable can obtain some measure of relief from their misery.

A STUDY OF THE EFFICIENCY OF MIXED TOXINS (COLEY) IN INOPERABLE SARCOMA. A CRITICAL ANALYSIS OF 134 MICROSCOPICALLY PROVEN CASES.

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(Concluded from page 446.)

CASE REPORTS.

BONE (Not Giant Cell).

CASE 86. (Case No. 41. and *Annals of Surgery*, 1913, vol. lviii.) Periosteal round cell sarcoma of femur with multiple metastases. A. G., 18, male. An extensive growth involving lower two-thirds of shaft of femur proved on microscopical examination to be small round cell sarcoma. Amputation at hip joint refused. After prolonged x-ray treatment, extensive metastases developed in pectoral and ilio-lumbar regions, involving ilium. Pectoral mass partially excised.

Pathological report. Round cell sarcoma. Toxin treatment instituted. In four weeks ilio-lumbar growth became necrotic and was drained. No trace of recurrence 10½ years later. Subsequently there developed epithelioma at site of x-ray dermatitis on chest and malignant tumors (epithelioma and sarcoma) at sight of x-ray dermatitis on thigh. The latter grew rapidly. Amputation was refused. Lung

metastases developed and the patient died. Recorded in Group C.

CASE 87 Personal case. Referred by Dr. Conant. Chondro-sarcoma of tibia with metastases. F. McH., an Irish stableman of 26.

Oct. 22, 1912. Gives following history. One and a half years ago growth appeared in right shin, increased to size of grape fruit, and was excised. It recurred within nine weeks, since which time it has been slowly and painlessly growing. Four days ago hemoptysis with pain in right chest. There is a slight dulness at right base with diminished respiration and tender area in posterior axillary line. A large firm mass involving whole leg just below knee, size of child's head, with ulcerated area about four inches in diameter. Markedly enlarged glands in groin.

Oct. 28. Dr. Conant amputated leg at mid-thigh under spinal anesthesia to rid patient of foul mass and prevent hemorrhage.

Pathological report. (1210-142) Dr. Whitney. Chondro-sarcoma. A lower extremity showing a tumor at calf with ulcerated surface. Section shows it infiltrated with muscle and fat, having a reddish-brown surface which in places was bony. Further section shows periosteum of tibia eroded by tumor growth. Section of tibia shows yellow marrow with firm cavity. Fibula not involved. Knee joint free. Enlarged lymph nodes from groin. Microscopical examination shows irregular area of hyaline cartilage, in places, however, with very abundant cells but without any definite type of structure.

Treatment with mixed toxins started three weeks later and continued $3\frac{1}{2}$ months. Maximum dose, 14 minims. Injections every two or three days. Reactions marked. Shortly after treatment started recurrence appeared on anterior surface of stump. This diminished in size but for last month unaffected by toxins. During period of diminution of recurrence there was no cough or pain in chest but three months after starting toxins patient had attack of chest pain with hemoptysis and from this time until treatment discontinued (March 6, 1913) patient steadily declined and recurrence on stump steadily progressed. Recorded in Group B.

CASE 88. (*Annals of Surgery*, Nov., 1914, p. 559.) Inoperable mixed cell sarcoma of clavicle and breast. R. B., male. Mass of two years' duration occupying whole left pectoral and axillary regions. Markedly protuberant and of variable consistency. Just above clavicle growth about size of hen's egg. Toxin treatment for two months with diminution in size and marked softening. Incision for drainage. Soon after toxins were discontinued the growth became rapid. Radium of no avail. Death. Recorded in Group B.

CASE 89. Personal case. Referred by Dr. Scudder. Small round cell sarcoma of tibia. Recurrent. M. B., a school girl of 15. House No. 180922.

Feb. 7, 1912. Three months ago fell wrenching but not striking right knee. Pain in knee persisted and in three weeks a swelling was noted just below the joint, motion became limited, and for past month has been confined to bed. Examination shows diffuse enlargement of right knee, slightly tender, not inflamed, no fluid in joint. X-ray shows typical periosteal sarcoma.

Feb. 10. Amputation at mid-thigh by Dr. Scudder.

Pathological report at time of operation. Small round cell sarcoma (Dr. Whitney).

Subsequent pathological report (122-42.) A leg amputated at thigh. Section in popliteal space shows a dense white tumor size of hen's egg grating under the knife. Microscopical examination of growth shows it to be composed of round cells with a rather homogeneous intercellular substance, in places infiltrated with lime salts, but nowhere with any true bone. Osteoid-sarcoma.

Nine days later toxin treatment started and continued every second or third day for 25 days. Maximum dose, 3 minims. Reactions good. Toxins then refused. Four months later (July 25) seen with recurrence in the stump, a deep mass about 1 by $1\frac{1}{2}$ inches, firm and fixed to deep tissues. X-ray shows periosteal sarcoma.

Toxin treatment resumed and continued one month. Injections every other day into tumor. Reactions sharp. Maximum dose, 16 minims. Although patient was having good reactions the growth was steadily increasing in size and the patient's general condition becoming much poorer. Died three months later (Nov. 18, 1912) of metastatic pneumonia and pleurisy. Recorded in Group A.

CASE 90 Personal case. Referred by Dr. Channing Simmons. Multiple periosteal sarcomata. L. E. S., a Portuguese barber of 19. House records W. S. vol. 637, p. 49 and vol. 671, p. 221.

July 15, 1909. Six months ago noted pain in left leg followed by "thickening of the bone." No known injury. Growth steady with very little pain. Now a hard non-tender fusiform swelling of mid-third of tibia about three times former size. July 16, amputation just below mid-thigh by Dr. Lothrop.

Pathological report. (97-45.) Periosteal sarcoma. Dr. F. C. Kidner. Left leg amputated just above the knee. Symmetrically involving the mid-third of the tibia is a hard, fusiform osteoid tumor rather cellular in appearance. The tumor partially involves the muscle. On section of the bone it is apparent that the growth is invading the medullary cavity. The tissue of the tumor is grayish in color. Microscopical examination shows masses of osteoid tissue with very small amounts of lime deposit and irregular and atypical cells. In the meshes of this badly formed bone lie masses of ovoid irregular cells, whose protoplasm shows many fibrillae extending from cell to cell. The cells are rather large and nuclei dense.

July 23, 1910. Patient reports with history of being well until six months ago when noticed pain and swelling in left shoulder. When shoulder had attained twice normal size pain ceased. For one week considerable pain in right shoulder. This he attributes to use of crutches. There is a fusiform symmetrical enlargement at left shoulder, size of very large grape fruit, extending from deltoid insertion up over acromion and coracoid. Smaller similar mass at inner end of right clavicle.

Treatment with mixed toxins started and continued three months. Injections every second or third day with good reactions. Patient's condition and size of masses about the same. Consistency of masses somewhat softer. Patient then returned to local physician, Dr. E. W. Smith, then of Provincetown, Mass., now of Boston, who continued toxins under my direction for six weeks. Maximum dose, 14 minims. Tumors still increasing in size when toxins omitted.

A letter from Dr. Smith Nov. 25, 1913 states that he believed the condition unaffected by the toxins. The left clavicle became involved and grew with the tumor of the right clavicle to such size that the patient was unable to turn his head. The growth of the humerus attained enormous proportions so that a specially constructed casket was necessary. He died June 12, 1911. Recorded in Group A.

CASE 91. Personal case. Referred by Dr. W. J. Mixer. Fibro-sarcoma of spine.

C. J. D., clerk, 43. May 24, 1913. Gives following history. For a year feeling of strain of back. Diagnosed as lumbago. Two months later drawing pain in front of left thigh relieved by lying down. One month ago numbness and severe pain of left leg which has persisted. Upper lumbar region shows stiffness and pain on motion; tenderness to pressure. Slight left scoliosis. No mass. Left knee jerk, absent. Reflexes and sensation otherwise normal.

May 25, 1913. Operation by Dr. Mixer. Laminectomy of first and second lumbar vertebrae, exposed a tough, infiltrating growth involving bone. Impossible to remove wholly.

Pathological report. (135-117) Dr. W. F. Whitney. Fibro-sarcoma with giant cells. A few rather firm, rather grayish fragments with muscle and a little tissue. Microscopical examination shows growth of fibrous tissue, in places quite cellular with rather hyaline fibers and here and there areas of scattered giant cells.

Treatment with toxins started in 12 days and continued for 7½ weeks, injections every other day. Maximum dose, 24 minims. Reaction after first fortnight marked, but mass became evident at operation scar and grew rapidly with development of complete paralysis of both legs. Treatment continued until day before death. Recorded in Group A.

CASE 92. Personal case. Referred by Dr. C. L. Scudder. Mixed cell sarcoma of lower jaw. Mrs. W., 32.

For 4½ weeks swelling of jaw accompanied by neuralgia of right side of face and beneath eye. Pain not great. Examination shows a swelling size of apple on outer side of right jaw, extending into mouth, with pus exuding from around teeth in this region. X-ray shows osteomyelitis. Mass is firm in places and in others somewhat fluctuant. Evacuation through incision in mouth. Tissue removed; evidently necrotic malignant disease.

Pathological Report. Sarcoma.

Sept. 9, 1914. Dr. Scudder performed a resection of one-half of lower jaw with removal of mass in mouth. Cervical glands not enlarged. Mouth mucosa sutured tight. Small drain in neck. Patient made a satisfactory convalescence.

Pathological Report (Dr. H. F. Hartwell). Osteoid sarcoma. The tumor of the jaw received on Sept. 9, consisted of a round, irregular mass about the size of a tennis ball. It was firmly attached to a portion of the ramus. On side was a foul necrotic mucous surface. A portion of the bone which was enveloped by the tumor was atrophic and friable. Section of tumor on the surface away from the mucous membrane showed a grayish-white firm substance. Microscopical examination of a number of sections showed a richly cellular tumor made up of large undifferentiated round cells with considerable eosin staining intracellular substance.

The nuclei were of large size and showed numerous mitotic figures and occasionally cells were seen containing several nuclei.

Nov. 4 patient seen with Dr. Scudder with recurrence size of crab-apple, firm, bluish-red, extending into floor of mouth. Mixed toxin treatment started following day and continued until Dec. 9 (5 weeks). Patient exhibited but little tolerance for toxins. Maximum dose 4 minims. Reactions always severe. Toxins without effect. Mass grew steadily in size, became quite soft and was early drained through incision in neck. X-ray treatment started. Despite massive doses every second or third day patient became progressively weaker and died Jan. 16, 1915. Recorded in Group A.

CASE 93. Personal Case. Referred by Dr. C. A. Porter. Spindle cell sarcoma of clavicle. M. A., Jewish printer of 20. House No. 171355.

Oct. 12, 1910. Admitted with history of small lump noted 5 years previously above right clavicle, which has grown steadily in size. Rather pale youth with tumor size of small orange above the sternal half of right clavicle and apparently slightly attached to same. The mass is not tender, not adherent to skin, and of firm consistency.

Aug. 13, Dr. Porter shelled out a tumor which was adherent to clavicle. Anterior half of sternal end of clavicle chiselled off.

Pathological Report. (108-56) Dr. F. C. Kidner. Spindle cell sarcoma.

Feb. 9, 1911. Readmitted with tumor size of a walnut adherent to mid-clavicle. Excision of clavicle refused.

June 9, 1911. Readmitted. Mass now size of peach. June 10, Dr. Porter did a partial excision.

Pathological Report. (116-45) Dr. H. F. Hartwell. Fibro-sarcoma.

Nov. 14, 1911. Readmitted. Has had x-ray treatment for over three months. Despite this the tumor is now size of a large grapefruit, involving clavicle, tense, red and ulcerated. Nov. 18, interscapulothoracic amputation by Dr. Porter. The entire mass could not be removed. The apex of the lung already involved.

Dec. 10. Mixed toxin treatment started with injections into a mass about the size of an egg. Continued for one month without apparent effect. Maximum dose, 5 minims. Reactions moderate. Patient died April, 1912. Recorded in Group A.

CASE 94. Personal Case. Referred by Dr. Porter. Giant cell sarcoma of spine (recurrent). A. J. M., boy of 16. House Records, orthopedic, vol. xx, pp. 67; W. S. vol. 761, p. 161.

June 10, 1912. Admitted to hospital with following story: Fell three months ago, striking spine. Pain and tenderness have persisted in this region ever since and for two weeks numbness over external and anterior surface of right thigh with absolute loss of sensation.

Patient walks with slight instability, complaining of weakness of right knee, steps with great care, the slightest jar causing excruciating pain in lower dorsal region of spine, shooting up to head. Slight depression in region of tenth dorsal spine with swelling about the size of hand in posterior subcostal region. Both legs may be raised over about one-third normal arc, beyond which pain in the back and to right side of spine. Ankle clonus and Oppenheim sign on right. Area of analgesia over external as-

pect of right thigh just below trochanter. X-ray negative.

June 21, 1912. Nerve consultant (Dr. Baldwin) finds double ankle clonus and Oppenheim with disappearance of tactile and pain sense over right anterior crural distribution. Diagnosis, partial paresis of traumatic origin.

June 22, 1912. Swelling of back appeared fluctuant but aspirating needle revealed nothing.

June 26, 1912. Operation. Dr. Porter. Ether. Bluish colored, rather tense, fluctuant mass exposed beneath muscles of back; incised with escape of quantity of dirty liquid which was found to be encapsulated in rather definite sac with thickened broken-down tissue in walls. Vertebrae involved. Cured out and during operation Dr. Wright reported giant cell sarcoma. Transverse process removed, bone curetted, capsule trimmed as much as possible. Bleeding profuse. Cavity tightly packed. Patient put to bed in very poor condition but recuperated rapidly.

Pathological Report (126-126), Dr. Hartwell. Giant cell sarcoma. "Specimen consists of soft irregular pieces of tissue. Microscopical examination shows richly cellular tumor composed of spindle cells with numerous giant cells. The cells are very atypical and their richness varies in different areas of the tumor, some places being quite fibrous. There are scattered necrotic areas in the tumor tissue."

Treatment with mixed toxins started at once and continued until Jan. 29, 1913, seven months. Injections every other day and then twice a week. Maximum dose, 18 minims. Reactions usually severe. Seen 108 times. Injected 62 times. Early injections into belly, legs, and arms, and later into recurrence, which rapidly developed. Recurrence became in length $5\frac{1}{2}$ inches, in breadth $3\frac{1}{2}$ inches, in elevation 2 inches, with paresis of right leg. Despite violent reactions treatment persisted in. Tumor began sloughing in several areas and in January, 1913, no evidence of any mass or disturbance of sensation of limbs.

Since that time patient has reported every week or fortnight; has steadily gained in strength and weight; no evidence of recurrence by examination or x-rays.

April 27, 1914. Shown before the International Society of Surgery at Massachusetts General Hospital through the courtesy of Dr. Porter.

In June, 1914, a routine x-ray examination discovered a small mass apparently arising from lateral surface of spinous process of third lumbar vertebra. This mass was not evident by inspection or palpation and was producing no symptoms. The boy was apparently in excellent health. At operation Dr. Porter removed a circumscribed bone cyst.

Pathological Report. Bone cyst, no evidence of malignancy. This was a benign cyst, an inflammatory reaction. It still seems fair to claim that the toxins averted invalidism with paralysis (perhaps lingering death) from the early rapidly growing recurrence.

Patient examined every two weeks. Last seen Feb. 1, 1915 (2 years since toxins discontinued). Well developed and nourished. Good color. No subjective or objective evidence of recurrence. Scars soft and not adherent to structures beneath. Has worked many months as chauffeur. Recorded in Group F.

CASE 95. (Case No. 44, Personal communication, and *Annals of Surgery*, 1913, pp. 772-774). Giant

cell sarcoma of spine with paralysis of bladder, rectum and legs. 21, male. Swelling of lower back treated as Pott's disease with plaster case for several months. Patient grew steadily worse. The mass had become very protuberant, occupying the entire region from the 8th dorsal to 3d lumbar vertebrae and extending 3 inches either side of vertebral line. Toxin treatment for 3 months with intervals of rest. Maximum dose, 3 minims. Reactions marked. Progressive diminution in size of tumor with restoration of motor and sensory functions. Entirely well 7 or 8 months later. Subsequently married and has two children. Working regularly. Well without evidence of recurrence 12 years after toxins discontinued. Recorded in Group F.

CASE 96. (Table, Case No. 54.) Case of Drs. N. S. Hunting and J. J. Thomas. (B. M. and S. J., 1901, vol. cxlv, pp. 367-372.) Giant cell sarcoma of spine, involving ribs and compressing cord. 39, male. Exploratory operation revealed inoperable involvement of vertebrae.

Pathological Report. Giant cell sarcoma. Mixed toxins continued for 2 years with restoration of health. Well 5 years later, when died of acute lobar pneumonia. Recorded in Group F.

CASE 97. (Table, Case No. 63.) Giant cell sarcoma of sacrum. Case of Dr. Vradenburg. A woman. Operation for tumor of sacrum but impossible to eradicate disease.

Pathological Report. Giant cell sarcoma. Toxin treatment with entire disappearance of growth. Patient well $1\frac{1}{2}$ years later. Recorded in Group F.

CASE 98. (Case No. 10, p. 148). Giant cell sarcoma of superior maxilla. Case of Dr. J. C. Whitely, St. Louis, Mo. E. W., female. Operation unable to eradicate disease.

Pathological Report. Giant cell sarcoma. Toxin treatment. Maximum dose, 20 minims. Injections into tumor and buttocks. Tumor disappeared. No evidence of recurrence over 2 years later. Recorded in Group F.

CASE 99. (Case No. 46.) Giant cell sarcoma of superior maxilla. E. S., boy of 8. Had had 3 teeth and portion of alveolar process removed for growth of superior maxilla. Disease not eradicated.

Pathological Report. Giant cell sarcoma. Evident recurrence in about a year. Toxin treatment then started and continued 3 or 4 months. Reactions often severe. Well with no sign of recurrence $3\frac{1}{2}$ years later. Recorded in Group F.

CASE 100. (Case No. 28.) Giant cell osteosarcoma of inferior maxilla involving mouth. C. J. V. W., 17 male. A growth $4\frac{1}{2} \times 2\frac{1}{2}$ inches occupying entire lower portion of jaw extending back nearly to the angle on either side, and the floor of the mouth was filled nearly to the teeth level with growth. Outer portions of the growth chiselled away.

Pathological Report. (Dr. James Ewing.) "Giant cell osteosarcoma. It is not the ordinary encapsulated giant cell sarcoma of the jaw, or of the epulis type, but a tumor infiltrating in all directions and of rapid growth with large amount of new bone formation." Mixed toxins in two days and continued for 10 months. Injections into pectoral region and tumor. Reactions moderate. Dose 5 min-

ims. Tumor rapidly disappeared leaving no deformity. Death in 5 months from nephritis. Recorded in Group F.

CASE 101. (Case No. 25.) Recurrent giant cell sarcoma of ilium and sacrum. Mrs. X., 30. Two months after a fall a hard swelling appeared on ilium. At operation growth found originating in upper and outer portion of bone. Too extensive for radical removal.

Pathological Report. Giant cell sarcoma. Treatment with x-ray and radium for a number of months without benefit. At length confined to bed suffering great pain. Tumor involved whole outer aspect of ilium with 3 discharging sinuses. Toxin treatment for 5 months. Maximum dose, 3 minims. Size diminished, tumor softened. Incision made for drainage of cavity size of two fists. Toxins resumed for 11 months. Drainage reestablished. One year 2 months later in excellent condition without trace of recurrence. Recorded in Group F.

CASE 102. (Case No. 12, p. 149.) Giant cell sarcoma of femur. For several months a mass occupying outer aspect of thigh. Exploratory operation revealed a growth arising from middle of femur. Section removed.

Pathological Report. Giant cell sarcoma. Growth very rapid. Toxin treatment started. Maximum dose, 3 minims. Reactions severe. Marked sloughing of growth. After 4 months incision and curettage of necrotic material. Repeated 9 months later.

Pathological Report. No evidence of recurrence. Bony union of fracture. Patient well 6 years later. Recorded in Group F.

CASE 103. (Case No. 24.) Giant cell sarcoma of radius. M. F., 26, female. X-ray of fractured wrist disclosed pathological process of bone. Tumor curetted out.

Pathological Report. Giant cell sarcoma. Seventeen days later no evidence of union. Amputation refused. After 6 weeks of toxin treatment bony union occurred. Patient well 5 years, 5 months later. Recorded in Group F.

CASE 104. (Case No. 39.) Giant cell sarcoma of sternum. Miss C. Enucleation of growth at junction of manubrium and second rib.

Pathological Report. Giant cell sarcoma. Toxin treatment at once, and continued several weeks. Maximum dose, 3 minims. A recurrence had developed which involved entire width of sternum $2\frac{1}{2}$ inches long and elevated $1\frac{1}{2}$ inches. Skin ulcerated. Metastases involving glands of both sides of the neck. Toxins resumed and continued 4 weeks with no effect despite marked reactions. Despite progressive growth and severe hemorrhages, toxins continued. Finally neck swelling disappeared and pain ceased. Tumor was gradually sloughing when patient died of nephritis. This case is regarded by Coley as giant cell sarcoma with metastases. Recorded in Group E.

CASE 105. Personal Case. Referred by Dr. F. G. Smith of Somerville, Mass. Giant cell sarcoma of thigh, invading pelvis. J. W., school boy of 14. May 10, 1913, gives following history:

Feb. 20, fell on ice in such a manner that point of skate struck anterior surface of the left thigh. Three days later a swelling appeared, which pro-

gressively increased in size. April 10, Dr. Smith excised as much as possible. Bleeding profuse.

Pathological Report (Dr. W. F. Whitney). Giant cell sarcoma.

Recurrence soon appeared and there is now present a sloughing mass the size of a cantaloupe on the anterior surface of the upper thigh, extending beneath Poupart's ligament into the false pelvis. Toxin treatment at once started and continued $7\frac{1}{2}$ weeks with some disintegration of tumor at site of injection. Maximum dose, 12 minims. Dr. Smith states that during this time pulmonary and hepatic metastases undoubtedly occurred. The father states that boy had a peculiar limp long before skating accident. Died July 8, 1913. Recorded in Group B.

CASE 106. Personal Case. Referred by Dr. H. C. Low, of Boston. Giant cell sarcoma of ilium, sacrum and spine. J. A., Italian, 34. O. P. D. No. 207888. Seen March 24, 1913. Had been operated upon at another institution for growth in left sacro-iliac region.

Pathological Report. Giant cell sarcoma. There is now present a healed scar in this region slightly raised upon a mass $1\frac{1}{2} \times 1\frac{1}{2}$ inches, adherent to ilium. X-ray shows flattening of body of 4th and 5th lumbar vertebrae, with pathological process in ilium and sacrum.

March 31. Mixed toxin treatment started and continued 13 weeks. Reactions often severe. Maximum dose, 16 minims. No appreciable effect. X-ray treatment for 2 weeks without benefit. Patient died Aug. 20, 1913, with ulcerated, bleeding mass size of football. Recorded in Group A.

FASCIA AND MUSCLE.

CASE 107. (Case No. 7, p. 144.) Spindle cell sarcoma of calf. Case of Dr. McArthur of Chicago. 40, female. Radical excision of tumor arising from fascia of calf.

Pathological Report. Spindle cell sarcoma. Recurrence in 7 months size of one-half an egg. Patient several months' pregnant. Toxins for 12 weeks with disappearance of tumor. No recurrence 18 years later. Recorded in Group F.

CASE 108. (Table, Case No. 90.) Recurrent spindle cell sarcoma of knee. Case of Dr. C. S. Cole, New York City. Excision of growth arising from fascia about knee and involving periosteum.

Pathological Report. Spindle cell sarcoma. Recurrence in a few months. Second excision followed by recurrence 3 inches long. Toxins for 3 years with intervals of rest. Maximum dose, 30 minims. Patient in good health 10 years later. Recorded in Group F.

CASE 109. (Table, Case No. 56.) Spindle cell sarcoma of thigh. Case of Dr. H. P. Underset, Toronto, Canada. 22, male. Treatment for 2 or 3 months with mixed toxins for spindle cell sarcoma of thigh with entire disappearance. Patient well 2 years later. Recorded in Group F.

CASE 110. (Case No. 65.) Recurrent fibro-sarcoma of buttock and thigh. Mrs. S., 30. Large recurrent tumor of left thigh, involving muscles and fascia of thigh posteriorly. Mixed toxin treatment for 3 months. Injections into tumor with marked reactions. Five years later two small, hard, movable masses at site of former tumor. Excision.

Pathological Report. Fibrous tissue; no trace of

sarcoma. Well without recurrence 20 years after treatment stopped. Recorded in Group F.

CASE 111. (Case No. 81.) Recurrent small round cell sarcoma of back. N. J., boy of 8. Tumor of scapular region developed 2 weeks after a fall, and in a month became size of orange and fluctuant. Aspirated, but promptly refilled. On account of size it was impossible to remove completely. Practically disappeared under 4 months' x-ray treatment, but 3 weeks later recurred. Then mixed toxins started with disappearance of growth. In good health without recurrence 11 years 6 months later. Recorded in Group F.

CASE 112. (Case No. 79.) Recurrent spindle cell sarcoma of arm. Mrs. H. W., 25. A mass arising from fascia of upper arm 12 x 5 x 4 cm. (pathological report, fibro-sarcoma) quickly recurred. Fifteen months later there existed a definite swelling of two-thirds of the upper arm, involving $\frac{3}{4}$ of its circumference. Mixed toxin treatment still in progress at time of report (1 year 9 months). Injections into pectoral region and tumor. Reactions severe. Growth somewhat diminished in size. Recorded in Group E.

CASE 113. (Case No. 51.) Recurrent spindle cell sarcoma of palm. Mrs. M., 18. Excision of tumor of palm half size of hickory nut, followed quickly by recurrence. This also was excised.

Pathological Report. Spindle cell sarcoma. A second recurrence developed. Mixed toxins for 3 months. Maximum dose, 20 minims. Tumor disappeared but recurred in two years, resisting further toxin treatment. Amputation of arm was followed by general metastases and death in a few months. Recorded in Group C.

CASE 114. (Case No. 52.) Six times recurrent spindle cell sarcoma of palm. A. C., 21, female. The sixth recurrence of a spindle cell sarcoma of the palm was treated for 18 months with mixed toxins. The necrotic tumor tissue was then removed. Recurrence in 14 months. Forearm was amputated followed by metastases in brain. Recorded in Group C.

CASE 115. Personal Case. Referred by Dr. E. H. Risley, of Boston. Spindle cell sarcoma of thigh. M. O., Russian, 40. O. P. D., No. 53388.

Dec. 27, 1905. For 10 years has had a tumor growing in thigh. At present extends from just below trochanter almost to knee. Solid, not adherent to skin and apparently not adherent to bone. Mass excised by Dr. Hugh Williams on following day.

Pathological Report (Dr. W. F. Whitney). Round cell cystic sarcoma.

June 1, 1908. Recurrence at original site size of crab-apple. This and two small masses size of marbles removed by Dr. F. T. Murphy from muscle bed.

Pathological Report (Dr. W. F. Whitney). Small spindle cell sarcoma.

Oct. 19, 1909. Recurrence 10 x 4 inches slightly movable on bone. No evidence of extension into abdomen. Treated with mixed toxins from this day until June, 1910 (8 months). Injections every other day at first, then twice a week. Maximum dose, 10 minims. For 3 months tumor remained practically the same size, perhaps of slightly softer consistency, then grew rapidly, breaking down into a sloughing cauliflower growth. Hemorrhages frequent.

In June the tumor was nearly twice the size of a football. Died 2 days after amputation at hip.

Pathological Report (Dr. W. F. Whitney). Small spindle cell sarcoma. Recorded in Group B.

CASE 116. Personal Case. Referred by Dr. Wm. M. Conant. Mixed cell sarcoma of thigh. W. P. S., a clerk of 42. House Nos. 186608, 186632, 186737 and 187278.

Dec. 17, 1912. For several months has had soreness in groin necessitating use of a cane for 2 or 3 months, and two canes for about a month. Pain almost constant. Patient has osteitis deformans. Left hip can be flexed to about right angle. Other motions normal. Mass on anterior aspect of thigh extending from pubes one-third way down the thigh and posteriorly to tuberosity of ischium (about 4 x 5 inches), firm, apparently encapsulated, only slightly tender. Mass size of orange removed for examination.

Pathological Report (Dr. W. F. Whitney). Large mixed cell fibro-sarcoma.

Toxin treatment started Jan. 25, 1913, and continued in hospital until Feb. 13. Injections every other day. Reactions very severe. Maximum dose, 6 minims. No change in size of growth, but consistency distinctly softer. Patient then discharged to local physician, Dr. S. E. Donovan, of New Bedford, Mass., who continued treatment under my direction until March 11, 1913 (total of 7 weeks). Injections every second or third day. Maximum dose, 12 minims. At end of this time suffering intense. Mass about 6 x 6 x 5 inches, extending within pelvis and encroaching upon bladder and rectum. Patient died April 6, 1913. Recorded in Group A.

CASE 117. Personal Case. Referred by Dr. C. L. Scudder. Spindle cell sarcoma of thigh. B. H. C., 22, male.

May 21, 1914. Two years ago began to have pain in right thigh, and a freely movable mass of firm consistency, size of a fist developed. This was removed March, 1913, in another city. A recurrence developed which was removed in 3 months. A second recurrence developed and was excised Jan. 14, 1914.

Pathological Report (Dr. H. T. Karsner). Spindle cell sarcoma. The recurrence after this operation was extremely rapid, a small tumor being already present when the patient was discharged from the hospital. Now a tumor of the posterior aspect of right thigh size of a small cantaloupe movable, not attached to bone. Skin covering tense and bluish-red. X-ray examination (Dr. W. J. Dodd) shows no evidence of involvement of bone. On the lower abdomen there is a small mass, firm, freely movable, apparently entirely within subcutaneous tissue, the size of a walnut. This mass excised.

Pathological Report (Dr. H. T. Karsner). Mass 2 x 2 x 1 cm., covered by skin. Cut surface pallid, bulging, fleshy mass with a few small points of necrosis. Fibroma.

Toxin treatment of thigh tumor started May 26, 1914, and continued for 5 days. Maximum dose, 3 minims. Reactions moderate. Discharged to local physician, Dr. J. N. Roy, of Webster, Mass., for further treatment. Dr. Roy writes: Toxins continued 4 weeks, when tumor broke. Maximum dose, 5 minims. Reactions severe. Patient died July 21, 1914, of sudden, severe hemorrhage from large vessel involved in growth. No metastases were evident. Recorded in Group A.

CASE 118. Personal case. Referred by Dr. Hugh Williams. Round cell sarcoma of thigh. E. S., factory hand, 55. O. P. D., No. 148376. Seen March 7, 1910.

On May 25, 1906, had growth of 4 years' duration on anterior aspect of left thigh removed. It was thought to be a lipoma.

July 7, 1909. Another operation in same city for tumor in same region.

Pathological Report. Round cell sarcoma, with tendency to large rather than small cells.

For the past 5 months a recurrence has been growing and extending upwards into abdomen. The mass is now roughly 8 x 6 inches and lobulated. Toxin treatment for 3 weeks without appreciable effect. Patient then lost sight of. Recorded in Group A.

SKIN AND SUBCUTANEOUS TISSUE.

CASE 119. (Case No. 1, p. 136.) Melanotic sarcoma of neck. Case of Dr. Greenwood, Leeds, England. Recurrence $2\frac{1}{2} \times 3$ inches after excision of melanotic sarcoma. Eight days later mixed toxin treatment started and continued for 2 years 1 month (105 injections). Maximum dose, 15 minims. Growth disappeared in 5 months. Well 2 years after disappearance of mass. Recorded in Group F.

CASE 120. (Case No. 76.) Recurrent sarcoma of shoulder. H. B. M., 56, male. A benign tumor, which had existed for many years, began to grow rapidly and was excised.

Pathological Report. Spindle cell sarcoma. A small recurrence in 5 months. Mixed toxin treatment for several months. Patient well without evidence of recurrence 9 years later. Recorded in Group F.

CASE 121. (Case No. 61.) Three times recurrent round cell sarcoma of lip. M. S., girl of 5. Three excisions of growth of lip followed quickly by recurrence. Growth $1\frac{1}{2}$ inches long when toxin treatment started. Injections near tumor. Reactions mild. Tumor became firmer and smaller. Then excised.

Pathological Report. No trace of sarcoma. Treatment continued with intervals of rest for one year. Patient well without recurrence 16 years later. Recorded in Group F.

CASE 122. Personal Case. Referred by Dr. E. H. Risley. Melanotic sarcoma of back. F. H. F., iron worker, 35.

Under treatment two years, two months; seen 224 times; injected 195 times; maximum dose 53 minims. July 14, 1911, Dr. Homans excised, in the O. P. D., a growth of five weeks' duration arising from a pigmented mole over the right scapular region.

Pathological Report (117-73). "Specimen for examination consists of a rounded tumor 3 cm. in diameter which is sessile and dark purplish red with a surrounding oval-shaped piece of skin and subcutaneous tissue, varying in width from 1 to 2 cm. Section shows the center of the tumor infiltrating the subcutaneous structures. Microscopical examination shows a richly cellular tumor containing much brownish yellow pigment. The cells appear to have an alveolar arrangement. They are fairly large and spindle shaped with rather deeply staining nuclei. The tumor seems to be surrounded by a

tough layer of fibrous tissue but in places this fibrous tissue is very faint and the tumor appears to have gone beyond it. Melanotic sarcoma."

Oct. 26, 1911, Dr. Cobb excised, in the House, a recurrence to the outer side of old scar.

Pathological Report (1110-129), Dr. W. F. Whitney. "A piece of tissue from the shoulder measuring $6 \times 4\frac{1}{2}$ cm., in the midst of which was a coal black nodule $1\frac{1}{2}$ cm. in diameter. Microscopical examination of the nodule showed large cells, many of them containing a black pigment with a little intercellular substance between and irregularly infiltrating into the periphery. Melanotic sarcoma."

I saw patient fifteen days later with recurrence in second scar $2\frac{1}{2} \times 1\frac{1}{2}$ inches, and a palpable mass in the axilla the size of a pigeon's egg. Toxin treatment instituted. Within twelve days a mass the size of an English walnut had appeared in the same scar. The two masses became confluent but were entirely sloughed out in one month, leaving a soft thin scar. During this time, however, a recurrence appeared in the upper scar, which became in size $3\frac{1}{2} \times 2 \times 1$ inches. This whole mass was entirely sloughed out by Jan. 13, 1913. A pigmented mass appeared in the right pectoral region early in January, 1912. It ruptured in three weeks with local injections but increased in size until 3×2 inches. There were several erysipelatous attacks, when whole pectoral region would be red, hot, tense, and tender, with appearance of a second gland in the axilla and another in the neck. The latter became the size of a cherry, but entirely disappeared in one month. The axillary masses became the size of hen's and pigeon's eggs during these erysipelatous attacks, but within a month became decreased to size of pigeon's and sparrow's eggs and never became any larger until treatment was discontinued eleven months later, i.e. the upper axillary mass which was present when first seen (Nov. 10, 1911) was no larger and just as movable twenty-six months later when treatment was stopped (Jan. 28, 1914). The entire breast tumor (3×2 inches) sloughed out with continuous appearance of dark pigment by August, 1913, and never recurred. At this time patient was in excellent flesh with good appetite and no evidence of internal metastases. I was arranging with social service department for light employment. He then disappeared on a spree, returning in nineteen days haggard and weak. Treatment was resumed, but he never regained his former tolerance for toxins. The average dose for the last months was only 4.8 minims but the reactions were just as severe as he had experienced when taking 40 to 50 minims. New masses began to appear on abdomen, arms, breast, and back. He died February 26, 1914, with metastases in the spinal cord and abdomen. Recorded in Group D.

CASE 123. Personal Case. Referred by Dr. G. W. W. Brewster. Spindle cell sarcoma of shoulder. W. K. S., Canadian janitor of 44. House No. 185026.

Sept 18, 1912, appeared with profuse hemorrhages of tumor of right arm at insertion of deltoid. Six months ago he had scratched a mole in this region, and since then it had painlessly increased in size until now it is as large as an orange. Tumor firm, lobulated, not connected with bone, and ulcerated in several places. A number of glands size of walnut in axilla. Consensus of opinion after examination was against radical operation. Tumor mass was therefore excised with wide margin, and 4 days

later axilla entered, but growth had infiltrated walls of vessels and was obviously inoperable. A mass size of lemon removed.

Pathological Report (Dr. W. F. Whitney, 129-77). Spindle cell sarcoma.

One week later treatment with mixed toxins started and continued for 15 weeks. Injections every 2 or 3 days. Reactions very severe. Maximum dose, 16 minims. When toxins were started there was a mass over deltoid size of walnut and 2 masses in axilla about same size. During first 3 months of treatment all masses became softer and smaller; that on arm practically disappeared; those in axilla becoming about the size of beans. From this time patient troubled with much nausea and vomiting so that dose was necessarily reduced. Two weeks later mass evident in abdomen for first time. Grew rapidly. Toxins stopped. Mass apparently involved liver and either stomach or transverse colon, and within a month had extended from right flank to anterior axillary line on left and from costal margin to level of umbilicus. Recorded in Group D.

CASE 124. Personal Case. Referred by Dr. Beth Vincent. A multiple melanotic sarcomata. M. J. R., 38, female. Cigar maker. Hospital Records. E. S., vol. 688, p. 127; E. S., vol. 736, p. 153; W. S., vol. 727, p. 121.

June 4, 1910, reports with history of injury to left hand 18 months previously, followed by lesion with scab of dark brown color, which has persisted and has painlessly increased in size. Discolored, ulcerated, slightly raised area $1 \times 1\frac{1}{2}$ inches. Excised by Dr. Brooks with wide margin. Pathological examination by Dr. F. C. Kidner showed cells, very many with mitotic figures, occurring in mass of evidently infiltrated character and with pigment, intra and extra cellular.

Sept. 27, 1911. Recurrence size of a walnut, dark bluish color, and mass in axilla size of half an orange, firm, smooth, somewhat adherent, not fluctuant or tender. Dr. Cobb made attempt to dissect axilla. Tissue melanotic and very vascular. Growth on hand excised with wide margin. Patient then received daily x-ray treatment.

Three months later mixed toxins started. In meantime patient had developed tumor of left breast size of an egg. Mass in axilla size of English walnut. Two masses above umbilicus size of marbles. The latter were excised and microscopic examination showed melanotic sarcoma. Treatment continued for two months. Maximum dose, 16 minims. Reactions severe. Injections were given in various masses, either singly or collectively. Practically no change for 3 weeks, when blue-black subcutaneous masses were noticed in left neck, over left scapula and left acromion. Injections subsequently caused swelling and softening of growths, but new subcutaneous masses appeared from time to time and toxins omitted at end of two months. Recorded in Group D.

CASE 125. Personal Case. Referred by Dr. J. B. Hartwell. Multiple melanotic sarcomata. H. B. S., an English blacksmith of 25. O. P. D., No. 216268.

April 25, 1913. Reports with history of excision of small tumors from the left parotid region and left supra-orbital region in England in January, 1913. Three weeks ago recurrence appeared in parotid region, but other smaller masses had appeared on chest two months ago. At present a nod-

ular, non-tender tumor over left parotid size of English walnut; several small tumors in left supra-orbital region size of peas; two or three small pigmented nodules over left breast; and two small pigmented nodules on left arm. I advised against toxin treatment, but it was undertaken as a last hope and continued for 3 weeks. Although some tumors softened and sloughed out, new metastases continued to form. Recorded in Group D.

CASE 126. (Case No. 80.) Recurrent melanotic sarcoma of toe. Dr. D. Second toe amputated for malignant degeneration of naevus.

Pathological Report. Melanotic sarcoma. Several months later a recurrence in the groin, size of an egg, was excised. Pathological report, pigmented sarcoma. In two weeks a recurrence 2×3 inches. Mixed toxin treatment for six months. Tumor disappeared in a month. Seven months later patient died of metastases in brain. Recorded in Group D.

PAROTID.

CASE 127. (Case No. 56.) Recurrent round cell sarcoma of the parotid. E. S., 55, male. Removal of tumor of the parotid size of hen's egg attempted.

Pathological Report. Small round cell sarcoma. Quickly recurred. Toxin treatment for eight months. Maximum dose, 2 minims. Reactions moderate. In eight months tumor had disappeared. No recurrence five years, eight months later. Recorded in Group F.

CASE 128. (Case No. 63.) Recurrent spindle cell sarcoma of the parotid. W. L., 41, male. Three operations upon tumor of parotid, followed by recurrence.

Pathological Report. Spindle cell sarcoma. Toxin treatment started when tumor involved parotid and submaxillary region. Treatment for ten weeks with entire disappearance of growth. Six years later death from hemorrhage from gastric ulcer. No evidence of sarcoma. Recorded in Group F.

CASE 129. (Case No. 60.) Thrice recurrent mixed cell sarcoma of the parotid. Mrs. B., 25. Three operations upon the parotid followed by recurrence.

Pathological Report. Mixed cell sarcoma. Toxin treatment begun when tumor size of small egg, infiltrating entire gland. Treatment continued four months. Mass reduced in size to small movable nodule. This was excised. Pathological report, no trace of sarcoma. Patient well ten years later. Recorded in Group F.

CASE 130. (Table Case No. 10.) Small round cell sarcoma of the parotid. Case of Czerny. A tumor of the parotid had been removed, followed by inoperable recurrence size of fist.

Pathological Report. Round cell sarcoma. After eighteen injections, tumor resolved to a small mass, which was removed. Patient well one year later. Recorded in Group E.

CASE 131. Personal case. Referred by Drs. F. T. Murphy and Farrar Cobb. Large spindle cell sarcoma of the parotid (recurrent). G. P. C., an English butler of 34. House No. 178774.

Feb. 10, 1911, Dr. Murphy excised right parotid for mass 3 cm. in diameter, not adherent to the skin, and without glands in neck.

Pathological Report (112-31), Dr. Whitney. Fibrosarcoma. An elliptical piece of skin 6 x 3 cm., with a rather firm indurated tissue beneath, 2 cm. in thickness. Microscopical examination showed normal parotid tissue, in part of which was a firm rather fibrous new growth composed of fibrous tissue, in places very cellular with large elongated nuclei. This tissue infiltrated between the lobules of the gland itself.

About ten days after operation three injections of the mixed toxins on successive days with marked reaction. Maximum dose, 2 minims. Further treatment refused.

Seven months later Dr. Cobb operated for considerable recurrence causing paralysis of the right mouth and right eyelid.

Pathological Report (1110-77) Dr. Whitney. Spindle cell sarcoma. A piece of skin 6 x 3 cm., with a rounded ulcerated area about 2 cm., beneath which was an infiltrating growth. Microscopical examination of the growth showed it to lie in the subcutaneous tissue, and to be formed of interlacing bundles of rather large elongated spindle cells with small openings hollowed out in the tissue for blood vessels.

Two weeks later recurrence size of walnut. Mixed toxins resumed and continued for two months. Reactions marked. Maximum dose, 6 minims. Mass practically disappeared in six weeks, but within a week reappeared, and in another week was the size of half a crab apple, with a second mass the size of a walnut, close by. Patient died in two months. Recorded in Group C.

CASE 132. (Case No. 69.) Fibrosarcoma of the nerve sheath (anterior crural), with involvement of the muscle and glands. B. C. C., boy of six. Mass in the right groin appearing three days after injury with baseball; grew rapidly. Excision with recurrence in fortnight. Toxins for three or four months. Reactions moderate. Two years ten months later patient well without recurrence. Recorded in Group F.

CASE 133. (Table Case No. 91.) Recurrent melanotic sarcoma of the retina. Case of Dr. T. S. McDermott of New Haven. An attempt at removal was followed by recurrence involving the orbit. This was hopelessly inoperable.

Pathological Report. Melanotic sarcoma. Toxins for three months with disappearance of growth. Three and a half years later, however, metastases in liver, and death. Recorded in Group D.

CASE 134. Personal Case. Referred by Dr. Balch. Round cell sarcoma of the spermatic cord involving the abdominal muscles. S. G., Italian of 40. W. S., vol. 675, p. 305. Sept. 8, 1910. Admitted with history of pain and mass in left groin after heavy lifting five months ago. This mass had increased in size until it now extends from the internal ring to base of scrotum. Sept. 9, Dr. Balch performed a left orchidectomy with excision of portion of lower abdominal wall for infiltrating tumor.

Pathological Report (109-32), Dr. F. C. Kidner. Round cell sarcoma.

Toxin treatment started in four days and continued one month. Despite severe reactions a recurrence quickly appeared and grew rapidly until size of a large pear when toxins discontinued. Recorded in Group A.

ERRATUM AND ADDENDA.

Under Conclusions (page 335) the last line of the sixth paragraph should read, An equal division of round and spindle cell, instead of "An equal division of round and small cell."

CASE 1 (page 336) was seen March 18, 1915. There was no objective or subjective evidence of recurrence (3 years, 11 months since toxins discontinued).

CASE 3 (page 337) has written (March 1, 1915) since the paper went to press that there is no evidence of the old trouble and that she is feeling perfectly well. (2 years, 11 months since toxins discontinued).

CASE 94 (page 442) was examined March 16, 1915. There was no objective or subjective evidence of recurrence (2 years, 1 month since toxins discontinued).

Medical Progress.

EIGHTH REPORT OF PROGRESS IN ORTHOPAEDIC SURGERY.*

BY ROBERT B. OSGOOD, M.D.; ROBERT SOUTTER, M.D.;
HERMANN BUCHOLZ, M.D.; HARRY C. LOW, M.D.;
AND MURRAY S. DANFORTH, M.D., BOSTON.

TUBERCULOSIS.

DaCosta¹, after a thorough discussion of the subject, concludes that the occurrence of traumatic tuberculosis is a necessary deduction from acknowledged facts. He does not believe that the dogmatic decision which has long been a precedent in court, that traumatism has nothing to do with the determination of tuberculosis, can be upheld.

[Ed. Note.—We called attention in the Fifth Report of Progress in Orthopaedic Surgery to the investigations of Wilson and Rosenberger², in which nearly the same conclusions were reached. The experience of the editors is also in general accord with this view. It is obvious that tuberculosis does not exist unless tubercle bacilli are present and that traumatism does not produce tubercle bacilli. Nevertheless, their very common existence in the body, without giving rise to symptoms, is well known, and in the light of these investigations it seems probable that trauma may be the direct exciting cause of their rapid development at the seat of the injury into a definite tuberculous lesion.]

Froelich³ has given much consideration to the tuberculous processes in infants and has pointed out certain special features which these infantile cases present. 1. A tendency to hypertrophy in both bone and joint affections with an early opening and a short sinus period. 2. The frequent involvement of the shaft of the bone in contradistinction to the usual epiphyseal lesion of later life. 3. The tendency to dislocation, especially in the diseases of the hip joint.

* This report is based on a review of 303 articles selected from about 500 titles having to do with orthopaedic surgery, appearing between March and August, 1914. References are given to only such articles as have been selected for note and comment.

4. The occurrence of an acute form most common in the knee and elbow, running a rapid course, healing soon after evacuation, and leaving little stiffness. 5. The common existence of multiple bone foci. 6. The predilection of the process for the testicle and the immunity of the prostate. In making the diagnosis syphilis and a staphylococcus infection must be carefully excluded. The mortality he considers to be about ten per cent. The process in the viscera and peritoneum runs the same grave course as in older children, but in other locations the tendency to spontaneous recovery is very noticeable. This should lead to much more conservative surgical treatment than in older children.

Huntington⁴ is still sceptical concerning the permanent cure of bone tuberculosis by rest, fixation, traction and general systemic treatment. He does not believe in the efficiency of conservatism and believes that most bone foci can be easily reached. He reports further cases in which following MacNamara he has tunnelled the neck of the femur through the great trochanter to reach foci in the head of the bone. He thinks epiphyseal lines are often invaded by the disease but need rarely be considered. The cavity may be treated with pure carbolic acid and alcohol, phenol, camphor, Beck's paste, etc.

[Ed. Note.—With the belief which Huntington seems to hold that tuberculosis of the joints is usually best treated by operation designed to remove the tuberculous disease, the editors cannot agree. Localized bony foci not involving epiphyses or epiphyseal lines may perhaps well be so treated in children. In adults surgical procedures designed to prevent the spread of the disease and bring about a bony ankylosis may be often advisable. Rogers' experiments on young dogs have shown that very decided disturbances of growth may result from tunnelling operations through the diaphysis into the epiphysis, and results from purely conservative measures coupled, as in Rollier's clinic, with heliotherapy leave little to be desired. The men who have had largest and longest experience with both radical surgical and conservative treatment in children are the ones who most strongly advocate rest, fixation, and general systemic treatment and oppose surgical procedures designed to radically remove foci of disease involving the joint structures.]

Vulpinus⁵ considers his results from the Albee operation of bone graft into the spinous processes in tuberculosis of the spine to have been very satisfactory. He emphasizes the eminent pain reducing effect of the operation and the increased activity of the children. He insists upon prolonged rest after the operation and applies a brace.

Jacobs⁶ advocates the Albee operation in cases where conservative treatment has failed or the element of time is an important factor, believing that the method represents a great advance in the treatment of Pott's disease except in early

childhood. He believes that a callus firm enough to stand the great longitudinal sliding strain in these bone grafts needs many months for its development. He thinks fixation in a jacket or brace should be maintained for six months or more.

Beecherle⁷ reports a case of fibroepithelioid tumor of the tendon sheaths of the hand. It is of interest in calling attention to the fact that tubercle bacilli may cause an atypical formation resembling a neoplasm.

ARTHRITIS.

Rosenow⁸ has failed in only three out of thirty-eight cases of "arthritis deformans" to isolate organisms from glands draining the affected joints. In fourteen cases he found streptococci, in nine a peculiar staphylococcus-like organism at first completely or partially anaerobic, in nine the bacillus Welchii, in three staphylococci, in one the bacillus mucosus, in one the gonococcus. The author states that "There is often great sensitiveness of the patient to injection of killed organisms (autogenous vaccines) isolated from these glands and marked improvement may follow the injection. These facts in conjunction with the affinity of the organism for joints and muscles of dogs and rabbits after intravenous injections would seem to leave little doubt that the bacteria found in the glands draining the joints in arthritis deformans are the actual cause of the disease." He attributes part of the joint changes to the shutting off of the blood supply of the joints by the plugging of the vessels from endothelial proliferation induced by the organism. This possibly is further suggested by the experiments of Axhausen,⁹ who produced the gross and microscopic changes peculiar to arthritis deformans by ligating the blood vessels supplying the structures of certain joints in dogs, and by the later work of von Manteuffel,¹⁰ who, following the work of Rudnicki on the soft parts, produced artificial sclerosis of the vessels and changes in the articular ends of the bones by freezing and congestion. In these experiments of von Manteuffel there was finally complete disappearance of the cartilage and of the entire joint with connective tissue ankylosis of the two bones.

[Ed. Note. From the Editors' point of view it is unfortunate that the types of chronic arthritis are not more accurately differentiated by Rosenow. We suppose that he refers to the toxemic or infectious types and not to the senile hypertrophic types of arthritis deformans, or as Nichols and Richardson call them, the degenerative non-ankylosing types. In these latter we should not expect bacteria to be found as the causative agents, though the diminished blood supply from lime deposit in the vessel walls may well exert an influence on the joint changes.]

Hastings,¹¹ realizing that cultures from the blood, joints, and possible foci cannot be made in

all of a series of cases and that no one of these would be considered as a determining factor in all cases, has chosen the complement fixation test as a means of determining the bacterial cause of the "chronic infective deforming arthritis." Hastings' observations cover some 75 cases. Forty per cent. of these reacted only to the complement fixation test for streptococcus viridens, in others the gonococcus, Wassermann, and other fixation tests were positive. He considers it very rare that the manifestations of "arthritis deformans" are due to the gonococcus.

Thalhimer and Rothschild¹² produced an arthritis in half the rabbits they injected with streptococcus mitis. In character this arthritis was similar to the process caused by the micrococcus rheumaticus. They think that it is evident that an arthritis can be produced experimentally by blood inoculations of various streptococci and micrococci of the less virulent (non-pyogenic) group, but that evidence is still lacking that any distinct variety or species of streptococci is the specific cause of arthritis, at least in rabbits.

Moore¹³ has studied the action of vaccines and concentrated antistreptococcus serum in experimental streptococcal arthritis in rabbits, and while there are yet too few cases for any conclusions, the work is suggestive. Moore's experiments were stimulated by the fact that antistreptococcus serum had not been altogether satisfactory and he desired to find out whether in the presence of certain antibodies the serum was of low potency, hence the trial of the concentrated sera. Concentrated serum does not appear to have any effect on acute arthritis, though it may act as a prophylactic against further experimental infection and it may produce an immunity of from one to two months.

Greeley¹⁴ writes rather positively concerning the cause, and very optimistically concerning the treatment of "chronic rheumatism." He considers that it is experimentally proven that the introduction into an animal of a parasitic organism whose virulence is nearly balanced with the host's power of resistance frequently results in the establishment of chronic foci of infection in locations not reached by the blood plasma and leucocytes in full concentration. He believes that pathologically the lesions of chronic rheumatism occur in this way where the circulation is at a minimum in the arteries in the ends of the bones. He considers that the results in fifty-three cases which he has treated by means of autogenous vaccines have been satisfactory. He obtained the vaccine five times from the blood, fifteen times from the urine, and thirty-three times from the throat, the latter source he considers to be always satisfactory except in gonococcal infection. The vaccines should be autogenous and should never be given in acute cases. The size of his dose (which does not seem to be necessarily exact) is from one hundred million to one billion, not oftener than once in eight to ten days. He believes implicitly in the future of this treatment.

[Ed. Note.—We should like to share in the optimism of Dr. Greeley, but a considerable observation of the results obtained from the use of autogenous vaccines, mainly derived from the throat, does not lead us to believe that the problem at present is either simple or sure of solution by this method. Not only have we failed to obtain any marked improvement in many cases in which we believe the vaccines to have been administered with knowledge and with judgment, but in certain cases it has been evident that the treatment had been too long continued until the patient did not react and seemed more susceptible to fatigue and other infection.]

Brackets's¹⁵ paper on arthritis associated with lesions of the genito-urinary tract is based on a wide experience, and his analysis of types and treatment seems to us clear and sound. He believes the responsible organism to be either the gonococcus or the colon bacillus. The gonococcal infections are of two types. One, usually monoarticular, in which there is a direct bacterial invasion of the joint characterized by an arthritis of sudden appearance, giving evidence of very acute synovial inflammatory involvement. This process later shows an inherent tendency to marked contractures with strong adhesions and destruction of articular cartilage. In the acute stage the organism may at times be recovered from the joint. The second type is polyarticular and of a mildly inflammatory nature, slowly damaging the joints from toxic infection. This type may develop with an entirely quiescent external urethral condition. Arthritis associated with a colon bacillus infection of the genito-urinary tract is of a severe persistent type of multiple distribution, having a predilection for the larger joints and frequently for the spine. The treatment in the acute type of Neisser infection should be directed toward the urethral focus and also toward the joint condition. This later requires often radical treatment; in the early stages hot salt solution lavage through a small incision and a subsequent drainage. The later stages of these cases offer ideal conditions for inflation with 4% iodoform oil. (See article on Iodoform Treatment of Ankylosed Joints, BOSTON MEDICAL AND SURGICAL JOURNAL, June 4, 1914). In the toxic types of gonorrheal infection and in the arthritis of colon bacillus origin, the treatment after search for and elimination of the focus should consist of measures aiding the absorption of exudates, improving nutrition, and favoring the return of motion.

Manning and Fassett¹⁶ report a case showing a typical clinical picture of Still's disease with small palpable glands in the cervical, axillary, and inguinal regions, in which carious teeth and a chronic otitis media were apparently the causes of the arthritis. Under general hygiene and the removal of the supposed sources of infection the condition rapidly improved. The case seems to be one more proof that Still's disease is an infectious or toxic arthritis.

O'Malley¹⁷ draws an interesting analogy be-

between otosclerosis and arthritis deformans, meaning evidently the osteoarthritic, hypertrophic, or degenerative type. He reaches the conclusion that they are due to the same cause. "The essential factor underlying the morbid changes in both diseases) is a chemical one affecting the nutritive stability of developing and fully developed bone and cartilage comparable to the rachitic phenomena, but how these chemical disturbances are actually initiated it is at present not possible to explain. Otosclerosis is osteoarthritis of the stapedio-vestibular articulation and of the bony labyrinth capsule."

[Ed. Note. We are interested in these conclusions of O'Mallay, working in another specialty. From a clinical point of view at least the hypertrophic or degenerative type of deforming arthritis occurring late in life has seemed to be best explained on a chemical rather than a bacterial theory of cause.]

We wish to mention a dissertation of Golant¹⁸ on ankylosis of the spinal column. This is based on a careful study of nine cases from von Bechterew's clinic, two of which died and were subjected to a careful macroscopic and microscopic study of the spinal column and the central nervous system. There are 26 illustrations and a bibliography of 221 titles. His most important conclusion seems to be that in certain cases symptoms of the involvement of the central nervous system predominate and at autopsy there are found both chronic meningitis and degenerative changes in the substance of the spinal cord and spinal roots which justified the separation of these cases into a special type known as Bechterew's disease.

Although Perthes¹⁹ has described the typical clinical picture of the condition, osteoarthritis deformans juvenilis, Drehmann²⁰ wishes to limit more strictly the use of the name by excluding all those cases showing any inflammatory signs or any tendency to contracture. The occurrence is in children between five and ten years of age and is usually limited to one hip. The first symptom is limping without much pain and with free motions except abduction. There is no outward rotation as in coxa vara,—in fact, sometimes slight inward rotation causing the trochanter to appear in the x-ray as slightly enlarged. There is as a rule no shortening. After several years the limp frequently improved and except for a more or less pronounced limitation of abduction there may be a perfect restoration of function. Perthes' pathological examination of a case showed intact cartilage, the head flattened, and its centre depressed. Drehmann, studying the course of cases by radiographs, has observed an atrophic area in the neck just beneath the epiphyseal line, which changed its form under pressure of the head. The primary change he believes to be in the neck, the head of the bone adapting itself to this. He considers the disease to be analogous to coxa vara adolescentium, but in this epiphyseal form the head shifts in the varus direction, *i.e.* downwards,

while in the osteoarthritis deformans juvenilis of Perthes the shifting of the head over the neck is in the valgus direction, *i.e.* upwards. Drehmann therefore proposes the name coxa valga epiphysaria. The cause of the condition is still obscure.

The paper of O'Reilly²¹ on Joint Syphilis is worthy of comment. It represents a study of 26 cases which show the necessity of careful history taking and both clinical and laboratory examinations in all cases of arthritis. O'Reilly found that 10% of the cases of arthritis in the clinic of Washington University Hospital in St. Louis were syphilitic in origin, and among these cases were many of supposed tuberculosis, osteoarthritis, and infectious arthritis. O'Reilly believes that the Wassermann reaction should be done in all cases of arthritis.

D. W. C. Jones²² suggests a new etiological classification for arthritis in line with that accepted for disorders of other parts of the body. This seems to the Editors to be simple, inclusive, and based on clinical knowledge. While it is perhaps no better than certain other classifications, it is added evidence of the more general acceptance of the fact of the existence of definite types of chronic and acute joint disease and of the importance of their recognition. The suggested classification is as follows: 1. Senility—Osteoarthritis. 2. Metabolic Toxemia—Gout. 3. Infectious Toxemia—Acute Rheumatism, Rheumatic Arthritis. 4. Focal Infection—Gonorrheal, Pneumococcal. 5. Granulomatous Infection—Tuberculous, Syphilitic. 6. Neoplasms (Rare). 7. Trauma—Traumatic Synovitis, Hemophilic Joints.

PARALYSIS.

Poliomyelitis—Obstetrical.

Poliomyelitis.—If their observations are verified, Saunders, Meisenbach, and Wisdom²³ have made a very important contribution to the epidemiology of Poliomyelitis. With others they have been impressed by the variety of diseases associated with paralysis which affect farm animals, children, hogs, dogs, pigeons, and others. They searched, therefore, for a larval fly which when ingested might produce these conditions. The common green backed fly (*Lucilia Caesar*) seemed to fulfill these requirements, depositing freely its eggs in the carcasses of animals. Upon these dead bodies chickens often feed. Experimentally they produced in monkeys and other animals a characteristic poliomyelitis by inoculating them with larvae obtained from the bodies of dead fowl. The course of the disease and the microscopic lesions were typical. They transmitted the disease by inoculations with emulsions of the spinal cord. They were able to produce the disease in hogs, chickens, rabbits, and guinea pigs by both inoculations and ingestions of the infected larvae. These larvae may be left by the fly on any piece of food upon which she rests and

the authors plead strongly for the extermination of the fly, the isolation of all sick animals, the covering of manure piles, and the screening of kitchens.

Francis²⁴ reports unsuccessful attempts to transmit poliomyelitis by the bite of the blood sucking cattle fly (*Lyperosia irritans*). Shaved monkeys, sick with poliomyelitis, were bitten by these flies for six days. The flies were then allowed to bite four well monkeys for six days. The disease was not transmitted in any instance.

Flexner, Clark, and Amoss²⁵ state that a strain of the virus of poliomyelitis transmitted through monkeys for four years showed three distinct stages of virulence each covering different periods of time. They suggest that this phenomenon of the cycles of change in the virulence may be correlated to the wave-like fluctuations in epidemics.

Robert Jones²⁶ has reviewed in his characteristically helpful manner the surgical treatment of poliomyelitis, emphasizing the important principles which should form the basis for all orthopaedic treatment. Perhaps the most essential factor is the possession by surgeon and patient of "boundless spirit and buoyant enthusiasm." In his description of his operations for correction of position and restoration of function in the paralyzed member by tendon transplantations, etc., he is most explicit, and one feels that no detail of technic is too small to be most carefully carried out.

Artificial ligaments and tendon fixations, especially the latter, he believes to be of great usefulness, not only because they improve function by maintaining a better position, but also because they allow over-stretched but not completely paralyzed muscles to regain some degree of power.

[Ed. Note.—Those who have had the opportunity to observe the results obtained by Mr. Jones by the use of the surgical measures he advocates need no better proof of the soundness of the principles which have dictated his exquisite technic.]

Netter²⁷, on the principle that the serum of persons who have had an attack of poliomyelitis might contain antibodies capable of exerting an effect upon the virus present in an acute attack, has made intraspinal injections of serum obtained from old cases of poliomyelitis. His most striking case was that of a man of 34 who was apparently recovering from a severe, acute poliomyelitis, when on the eighth day his legs became paralyzed. There was retention of urine and disturbance of sensibility extending up to the costal arch. On the ninth day, with the paralysis apparently progressing, Netter injected into the spinal canal 7 c.c. of serum obtained from a person who had had poliomyelitis seven years previously. By this time the anesthesia extended to the nipples, but on the evening of the day on which the injection was given the patient could "feel his toes." He was given ten injections in eleven days, the amount totalling 66 c.c., the

serum being obtained from eight different persons. Netter had applied this treatment in four other cases, but with such timid technic and with so few injections that although he says there was marked benefit apparent each time, yet some paralysis was left or the patients succumbed sooner or later.

Fraser²⁸ has reported the results of his careful clinical observation of ninety cases of acute epidemic poliomyelitis. He is doubtful of the great value of electricity. He is convinced of the value of early gentle massage and passive exercises, and later active and resistive exercises. We believe he emphasizes an important point when he speaks of the desirability of avoiding heavy braces and of persistent attempts to get the children to walk without any apparatus except that to prevent deformity.

Obstetrical Paralysis. Peltsohn²⁹, after a careful Roentgenological examination of eleven shoulders in ten cases of obstetrical paralysis, has found an injury to the upper epiphysis in nine. Of these nine, three were true paralyzes and six pseudo-paralyzes. In all cases, therefore, of pseudo-paralysis a definite separation was seen. Peltsohn believes that a real separation of the epiphysis is much more frequent than Lange considers it to be. The treatment in infants consists in fixing the arm in a position of elevation, abduction, and outward rotation, provided the epiphysis is united. If the epiphysis is still loose a position, of course, must at first be maintained which is most favorable to union. In older children manipulation may be helpful, but with a fixed distortion of the shoulder osteotomy below the insertion of the tendons of the pectoralis major seems to Peltsohn to be the best procedure.

(To be continued.)

Reports of Societies

SECTION OF GENERAL INFORMATION OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING OF MONDAY, DECEMBER 14, 1914, AT 8.15 P.M.
DR. JAMES E. TALLEY in the Chair.

RECENT CHANGES IN OUR CONCEPT OF THE ACTION OF DIGITALIS.

DR. H. C. WOOD, JR.: Many of the older theories concerning the effects of digitalis are drawn from experiments in which toxic doses were employed. When given in physiological doses, digitalis does not increase the blood pressure in either man or the lower animal. It is probable, however, that there is some constriction of the blood vessels, as is shown by the fact that when the slowing of the pulse is prevented the pressure is increased, and it is probable also that the diuretic effect is due to changes in the caliber of the vessels. The slowing of the

pulse, which is the most constant effect of digitalis, is in healthy individuals purely inhibitory. Stimulation of the vagus may produce heart block and other irregularities of rhythm. The slowing of the pulse is completely abolished by large doses of atropine. The muscular tone is not demonstrably affected after small doses, although it is possible that the largest therapeutic doses may increase it. The cardiac contractions are, however, enlarged. The effects in disease are often very different from those in health. In fever the vagus appears to be less than normally irritable, and digitalis does not slow the pulse. In chronic endocarditis the effects are different according to whether the rhythm is normal or there is auricular fibrillation. In the latter condition it will generally produce very great slowing of the pulse. It is impossible from the present data to draw positive conclusions as to the mechanism of its action in this condition, but it is probably partly due to stimulation of inhibition and partly to diminished ventricular irritability, the result of better nutrition. In cases of endocarditis with normal rhythm its effects are often much less marked. It is a mistake to give digitalis in all cases until the manifestation of toxic effect. Some conditions require larger doses to have any action, while others may be injured by full doses, but benefited by small ones.

CLINICAL AND ELECTROCARDIOGRAPHIC STUDIES OF THE ACTION OF DIGITALIS.

ALFRED B. COHN, M. D., of the Hospital of the Rockefeller Institute for Medical Research: The investigations reported were made in patients having an early rather than an advanced stage of heart disease. The mechanism of their hearts was normal, they had no edema, and their blood pressure was within normal limits. The most important alteration we have been taught to look for is in the heart rate. The reduction in the rate of the heart is an effect of digitalis upon which we rely, but one which we have not found constant in the type of case we are considering. We have been led to conclude from our observations that digitalis slows the sinus rhythm only in the group or hypodynamic hearts, and, that to produce slowing is not a function of digitalis in therapeutic doses. An effect on conduction may be set down as a usual effect of giving the drug, apart from specific preëxisting injury. We have noticed delayed conduction within 48 hours after the administration of the drug had been started. In many instances the auriculo-ventricular interval gradually lengthened during the succeeding three to five days until partial heart block occurred. In some cases, however, block occurs with extreme abruptness. One arrhythmia, practically unknown, the results of giving digitalis, is one in which none of the auricular beats are blocked. The auricles and ventricles continue to beat almost at the same time, but there is incomplete coördination between them. Another new sign in the electrocardiogram is an alteration in the size, shape and direction in the T-wave. The first change noted after the administration of digitalis is usually a diminution of the height of this wave, usually in the third Lead first and later in the second. The change may be noticed as early as 24 hours, and at the end of 48 hours the wave may have become isoelectric, or it may become diphasic. In some electrocardiograms the T-wave for pathological reasons is pointed downward. If

digitalis is given, the direction of the T-wave during the action of the drug is pointed upward. While the causative factors in the change of the T-wave cannot be precisely explained, the inference is that there is an alteration in the contractile substance of the heart muscle. Two criteria appear then in electrocardiograms to indicate surely the fact that digitalis is acting on the heart; the first in the slight but definite lengthening in conduction; the second, the very curious alteration in the T-wave. Electrocardiographic evidence can be supplied to show that digitalis has an action during fever of a nature precisely similar to that already described in non-febrile patients. Possibly, as an aid to contraction, much can be gained from the use of digitalis, but the expectation of obtaining an action on heart rate must be abandoned. There is, however, a group of febrile cases in which digitalis acts efficiently on rate. These in our experience have been patients showing auricular fibrillation or auricular flutter. Another topic long a subject of conflict is the relation of digitalis action to blood pressure. In the cases we have studied no alteration in pressure was found. Vascular effects, however, aside from changes in pressure, may be produced, and the untoward or beneficial nature of these require consideration. The relation of digitalis to the excretion of urine also was discussed. In the group of patients under consideration no increase in diuresis takes place. In patients having edema, other factors are involved. That a specific effect on urinary output does not occur as the result of giving digitalis, in the patients under discussion, has an important bearing on the drug's action in edema. In connection with the mechanism of the action of digitalis two possibilities have been much discussed; an action on the inhibitory mechanism and one on the heart muscle itself. Our studies lead us to believe that both views are partly right. Insofar as atropin may be taken to be a drug acting especially on the ends of the vagi, a release of the heart from a phase of digitalis action by its use indicates a nerve action of digitalis. Insofar as digitalis has other effects which atropin does not release its effect on the T-wave, it may be inferred that it has an action directed more especially to muscle. Both effects can be observed at the same time.

Book Reviews.

Forty-Sixth Annual Report of the Secretary of State on the Registration of Births and Deaths, Marriages and Divorces in Michigan for the Year 1912. Lansing, Mich.: State Printers. 1914.

This forty-sixth annual registration report records the vital statistics of the State of Michigan for the year 1912. During this period the birth-rate of the state was 32.9, the death-rate 13.4, the marriage rate 21.8, and the divorce rate 2.7. There was a total increase of 3,781 births, 797 deaths and 1835 marriages over 1911.

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THE LABOR CLEAN MILK BILL, AGAIN.

A CORRESPONDENT of the JOURNAL of March 11 criticizes the editorial of Feb. 25, favoring the so-called Labor Clean Milk Bill, and by inference the position of the Massachusetts Medical Society, which through its legislative committee, has appeared in advocacy of this bill before the Committee on Public Health. In so doing, the Society has ranged itself alongside the Milk and Baby Hygiene Association, the Consumers' League, and the Antituberculosis League. It also has been glad to find itself in accord in this instance with the Federation of Labor, which organization it has sometimes been pained and surprised to find opposed to measures of public health, as, for instance, smallpox vaccination.

The measure this year introduced by the Federation of Labor is, as was stated, simple and

direct, and its advocates have clearly shown that no class of the community has so vital a stake in public health measures as the wage-earners. When, as now, the Labor party takes a wise and moderate position, it behooves the good citizen to avail himself of their certainly powerful aid.

The gist of the correspondent's opposition to the bill appears to be that it is unnecessary, as local boards of health have power to handle the situation. In a community whose health administration is as efficient as Canton's appears to be, a community drawing its milk supply wholly from its own confines or vicinity, and especially *inside the state limits*, this may be true. But the best local board, unless given abundant money to go and examine out-of-state sources, as is done in Massachusetts by Boston only, would be powerless to protect its inhabitants. A possible factor in the low estate of the milk industry in Massachusetts is the severer standard exacted of our own producers than that required of out-of-state farmers. This bill bears equally and impartially upon both.

Moreover, the scrutiny of out-of-state sources by separate municipalities would be very uneconomical. A bill has been reported giving the State Board an appropriation for this purpose, and should this be carried, the work of health boards, local or state, in penalizing filthy conditions of milk handling, would be much facilitated.

But, unfortunately, not all local boards are as wide awake and active as that of Canton. Many towns have no milk inspection whatever. In others, local politics, the overshadowing influence of some local magnate, and the hesitation of the local authority to offend a good neighbor, weaken the endeavor and efficiency of the local board. It is hardly adequate to say that in case of a feeble health board the people "ought to" rise up, sweep it away, and elect an active board. The torpor of the board only reflects the indifference of that community. In such cases, and in those only, the State Board should be empowered to step in, free from any local intimidation, and see that the people are protected against the consequences of their own neglect.

CHARLES F. WITHINGTON, M.D.,
President of The Massachusetts Medical Society.

FACTORS IN THE DURATION OF PULMONARY TUBERCULOSIS

IN another column of this issue of the JOURNAL we publish an important article by Dr. Crane on "The Diagnosis and Treatment of Pulmonary Tuberculosis." Now that a diagnosis of tuberculosis is no longer tantamount to a death sentence, the question of prognosis and duration in a given individual becomes most pertinent. In no other disease has this question quite the same significance, because this disease involves a personal incapacity and dependence over a long period of time as well as involving the undoubtedly large element of danger as a constant focus of infection unless the patient is maintained under strict surveillance, or unless he is himself sufficiently educated in the hygiene of tuberculosis so that he needs no surveillance.

While it is true that this question of prognosis and duration cannot be determined as easily or as definitely as in the rather few self-limiting diseases, yet certain conditions peculiar to this disease when accorded their proper values are of positive aid—namely, racial and hereditary predispositions or immunity, previous physical condition, occupation and environment, and the extent of the lesion in the lung at the time the patient first came under notice.

Although it is not scientific to speak of tuberculosis as racial or hereditary in its selection, yet practically speaking heredity and race seem to be profound factors in this disease. Certain races are comparatively immune to tuberculosis, when occurring it runs in them a milder and milder course; in other races it is more common, runs a more severe and shorter course. The Jews have a relative immunity to tuberculosis which they may have acquired from having lived many centuries in overcrowded and unhygienic quarters. The predisposition of the Irish and the Italians to tuberculosis manifests itself only after removal from their native environment. In the later generations after this removal this predisposition is gone, probably as a survival of the fittest. The proneness of the Italian immigrants to tuberculosis can be ascribed to the difference in occupation and the somewhat changed mode of life. The number of returning tuberculous Italians has been so large that their government has had to provide extra facilities for them. These immigrants died and succumbed in the attempts to be

transplanted on new soil and under new conditions. After all, then, the question of race and heredity is only one of physical powers of resistance; it is the dominant characteristic possessed by one race, which may be lacking in another, that determines immunity or predisposition.

The physical condition together with the habits of life prior to infection modify the course of this disease, since they bear on the ability of the patient to withstand the devitalizing influences of the disease. It is peculiar that such individuals as have had outdoor occupations, who have engaged in heavy work, and who have robust bodies, such as are found among sailors, workers in the construction trades and the like, often fare much worse, or are incapacitated over longer periods, than the average city product of poor physique when he is infected—although, to be sure, the census of the latter is much greater. An explanation may be found for this condition in the fact that those of poor physique and of indoor life and occupation react very quickly and favorably to the stimulation of the new environment and the beneficent effect of the new mode of living enjoined on the afflicted. In tuberculosis the ability to make a change is of prime importance in effecting a cure. In the robust who have previously lived or worked out of doors, there can be little change for the better in the matter of environment at least, although there can be much change by way of temperate living.

While absolute reliance cannot be placed on the physical signs to denote the extent of the lesion and therefore the prognosis and duration, yet the size of the lesions, when they are considered in conjunction with the physical condition of the patient, furnishes important data in arriving at the prognosis. A large area of lung involvement and the patient withal in good condition means either that the infection is mild and of slow progress and long duration, or what is less likely, that the patient is extremely resistant to a rapid and severe infection. A lesion large of size but of recent origin would have been so rapid in its course as quickly to sap the patient's vitality. On the other hand the slow progress has made possible the development of a large area without great physical detriment to the patient; the slow progress allowing the body to overcome each new inroad of the disease as it arises. At no time is the disease allowed to become severe enough to overwhelm the patient. Moreover, a small lesion, with the patient never-

theless in debilitated conditions, means a rapid virulent infection and low resisting power, since if this type of infection had been of long standing it is not likely that it would have been limited to this small area, and if limited for a long time, it would not have had so deleterious an effect on the patient. During this period the patient would have been immunized against the toxic effects of the disease and shown little ill effects therefrom.

A large lesion, therefore, with good physical condition has a good prognosis both for ultimate outlook and duration—under proper conditions. A small lesion with the patient apparently overwhelmed within the short time that the disease has been manifest has a bad outlook even under the best conditions. Of course, a small lesion with the patient in good physical condition—i.e. incipient tuberculosis—in the average individual offers an excellent chance of recovery within a comparatively short time. It is these incipient cases which were unrecognized before the present rather more delicate methods of diagnosis—and, indeed, many of them are still unrecognized. It was Virchow who proclaimed the now famous dictum that all persons at one time or another are infected with tuberculosis but that most of them recover without symptoms or diagnosis.

The previous behavior of the disease is an important factor in determining its subsequent course, duration and severity, as well as the ability of the patient, from the economic standpoint, to carry out the necessary regimen for cure.

Finally, the most important element in the prognosis of pulmonary tuberculosis is its early diagnosis. An early diagnosis means cure. A late diagnosis, one at any time after the incipient stage, requires a guarded prognosis. It is the function of the practitioner to make the early and accurate diagnosis in order that the treatment may be prompt and efficacious.

THE IMPORTANCE OF REST IN THE TREATMENT OF GRAVES' DISEASE.

In an exhaustive paper on the "Diagnosis of Thyroid Disease as Related to Surgical Treatment," presented at a recent meeting of the Medical Association of the Greater City of New

York, Dr. Martin B. Tinker of Ithaca, who is a recognized authority on the subject of goitre, made the remarkable statement that he had succeeded in reducing the risk of thyroid surgery to a fraction of one per cent. This, he said, had been rendered possible only by "team work" in the matter of diagnosis and particular attention to the after-treatment. A decision as to whether or not thyroid disease existed, and whether such disease, if present, were the chief cause of the patient's discomfort, frequently required most careful application and wise interpretation of (1) a general physical examination; (2) special examination, especially of the eyes and throat; (3) laboratory tests; (4) x-ray examination. He emphasized the necessity of post-operative care for from six months to a year; stating that prolonged rest was of the utmost service, and that without this the surgical operation could not effect much. In the treatment of exophthalmic goitre, rest is no less an essential element in cases in which surgical interference is not called for than in those in which this is necessary. Many authors, in writing on this disease, make no reference whatever to its therapeutic value, and it would appear that its importance is by no means generally appreciated.

In concluding a paper, published in the *Medical Record* for March 13, in which are recorded certain observations on clinical treatments for this disease (which she prefers to designate by the name introduced by Bainbridge—systemic goitre,) Dr. Mary Sutton Macy, neurologist to the Demilt Dispensary, New York, lays stress on the kind of rest necessary in re-establishing the normal physiological balance in a patient suffering from the affection. Rest, if both physical and mental, affords unhampered opportunity to the *vis medicatrix naturae* to restore such physiological balance and possibly produce a cure. In the required regimen she contends drugs, sera, hormones and other therapeutic means take their proper places, as crutches prescribed to sustain, for the time being, some crippled portion of the organism, and should therefore be given symptomatically, and not as remedies for the hyperthyroidism *per se*. Rest if properly enforced, requires considerable of the physician's time and personal attention since only very few patients know *how to rest*. The art of muscular relaxation and passive innervation of the muscles is a difficult one to ac-

ire, and a still more difficult one to teach to patient whose whole personality is an expression of active innervation and muscular tension; and this kind of rest must be minutely thought to one who is the subject of Graves' disease.

Incidentally, Dr. Macy suggests as a possible theory regarding the etiology of exophthalmic goitre that it is a pathological syndrome secondary to a profound disturbance of the physiological pubertal balance by exhaustion of the nervous system, either rapidly by strong emotions, such as fear and grief, or more slowly through long-sustained effort to gratify ambition (intellectual or physical). This hypothesis is based first, on the fact that certain parallels in the picture of pubertal physiological balance and hyperthyroid symptoms have been noted by various observers, and, second, the general admission by most authorities that shock is an etiological factor, and the history of pubertal shock in one hundred per cent. of the cases in a series of forty-four recorded in her paper. The occasional cases of hyperthyroidism observed in children under the extreme low variation of normal pubertal age (which has been reached at seven years) may possibly be due to some similar condition which must account for the equally occasional cases of precocious menstruation and other infantile abnormalities of sexual maturity. Again, the fact that so many cases of Graves' disease are not recognized—or, some claim, do not appear—until the third, fourth or even fifth decade of life, does not, it is intended, disprove the theory, since all authorities admit that hyperthyroidism is frequently masked for years, and often mistaken for neurasthenia, hysteria, chronic laryngitis, etc., prior to the appearance of the exophthalmos and the marked thyroid enlargement. If this physiological theory will bear dissection and proof, it will serve, the author believes, to explain in large measure why so many widely different types of treatment meet with similar successes and failures, dependent largely, if not entirely, on the extent to which the therapeutic measure, at least, is carried and enforced as an accompaniment.

SALARIES OF DISTRICT HEALTH OFFICERS.

IN the issue of the JOURNAL for March 11, we noted the appointment, by Dr. Allan J. McLaughlin, Massachusetts State Commissioner of Health, of the eight district officers who are to have charge of the administration of public health affairs under the direction of the state department of health. Under the law, the health commissioner was given the right to select and appoint these officers, but their salaries are to be established by the governor's council, and some uncertainty seems to have arisen in the determination of their compensation. At a recent meeting of the council to deal with this question, the following order was adopted, requesting the attorney-general's opinion on the interpretation of the statute dealing with this point.

"Ordered, that the attorney-general be and is hereby requested to give to the council his opinion concerning the legal effect of the first ten lines of Section 5, chapter 792, Acts of 1914, especially answering the following questions:

"1. In the event of the appointment of a district health officer by the commissioner of public health, with the approval of the public health council, taking place, is it necessary that the compensation, subject to the approval of the governor and council, shall be fixed before said district health officer is entitled to perform his duties?—or

"2. Is he so entitled to perform his duties after his appointment by the commissioner and approval by the council prior to the fixing of his compensation by the governor and council?

"3. Does the phrase 'shall not engage in other occupation and shall give their entire time to the performance of their duties,' prevent a district health officer from in any way practising his profession for his private gain?"

The attorney-general's decision on these questions has since been returned, and the Council on March 19 approved the salary schedule of the new district health officers.

ENFORCEMENT OF LAW FOR LOCAL TUBERCULOSIS INSTITUTIONS.

IN an editorial on the local care of advanced tuberculosis in the issue of the JOURNAL for February 25, we commented on the delinquency of various Massachusetts cities and towns in compliance with the law requiring the establishment of tuberculosis dispensaries in all commu-

nities of more than ten thousand inhabitants. During the past week, in accordance with a recent vote of the public health council, Dr. Allan J. McLaughlin, state commissioner of health, has issued a notification to thirty of these communities requiring them to comply with this statute before July 1 of the current year. The thirty cities and towns affected by this order are: Holyoke, Malden, Newton, Fitchburg, Taunton, Everett, Quincy, Chicopee, Medford, North Adams, Northampton, Beverly, Revere, Leominster, Attleboro, Westfield, Melrose, Woburn, Marlboro, Milford, Adams, Weymouth, Watertown, Southbridge, Plymouth, Webster, Methuen, Wakefield, Greenfield and Winthrop.

It is understood that the attorney-general will be asked to proceed against such communities as fail to comply with this request within the specified time. The law provides a fine of \$500 as penalty for failure in such compliance. It is further expected that a similar notice will be served upon larger cities which have failed to establish tuberculosis hospitals, as required by law, and that these communities will be given until September 1 to meet this requirement.

MEDICAL NOTES.

LOW NEW YORK DEATH-RATE.—From figures supplied by Dr. William H. Guilfooy, Registrar of the Department of Health, it is clear that the past week in New York City was most healthful. The great decrease in the mortality of the week ending March 6, 1915, continued during the past week, although not to as large a degree as last week.

Comparing the figures for the past week with the corresponding week of 1914, reveals a considerably decreased mortality for nearly all causes of death, with the exception of the degenerative diseases, organic heart and kidney diseases, in which the death-rate was approximately the same.

So far as the age periods of those dying last week are concerned, the figures show a great saving of life among the adults, including the extremely old.

The death rate was 1.1-3 points lower, which corresponded to a relative decrease of 151 deaths. The death-rate so far this year, namely 13.95, is considerably below that of the corresponding period in 1914, there being a decrease in the rate of 1.5 points.

NEGROES IN THE UNITED STATES.—The bulletin on negroes in the United States, issued on March 20, by William J. Harris, Director of the

Census, Department of Commerce, contains for the first time a statement regarding mortality among negroes. All previous census publications have given statistics for the total colored population, in which were included the Chinese, Japanese, Indians, and other non-whites. The data are shown for the registration area of the United States, the registration states and certain selected cities.

The negro population of the area was 19.7% of the total number of negroes in the United States in 1910, and the deaths numbered 49,499, with a death-rate of 25.5 per 1000 population—a decrease as compared with the rate in 1900, which was 29.4. The selected cities shown are the 57 registration cities which had, in 1910 a negro population of 2500, or more, for which comparable data are available in 1900.

In the 57 cities included in the table the death-rate among negroes in 1910 was 27.8, and that among whites 15.9 per 1000, the rate among the negroes being nearly twice as great as that for the whites. In the 33 northern cities the death-rate among negroes was 25.1 and that among white 15.7 per 1000, while in 24 southern cities the rate for negroes was 29.6 and that for whites 16.9. Thus the death-rates for each race were higher in the southern than in the northern cities, the difference between the races in respect to death-rate also being greater in the south.

Both negroes and whites show decreases in death-rate in 1910 as compared with 1900, when the 57 cities are considered in the aggregate, the decline for the negroes being 3.4 and for whites 2.5 per 1000 population. Every city in the south, except Key West, Fla., and Memphis, Tenn., showed a lower death-rate for negroes in 1910 than in 1900; the increase in Key West was only 0.2, while in Memphis it was 3.9 per 1000.

The general tendency appears to be in the direction of a declining death-rate for negroes in registration cities, the decrease being somewhat greater for negroes than for whites; as a result, the difference between the death-rate for negroes and for whites in these cities was not as great in 1910 as a decade earlier.

The question whether the decrease in mortality among negroes in 1910 as compared with that of 1900 was due to permanent causes, such as improved housing conditions, better medical attention, and in general improved sanitary conditions, and not to the absence of epidemics, is important and interesting. Undoubtedly one of the factors which has caused the decrease in the death-rate—which decrease is almost universal in the cities of the south—is the increase in home ownership among the negro population. The ownership of homes data for the northern states and cities are not available, and what is presented here relates only to the south. In the decade from 1900 to 1910 the number of homes owned by negroes in the southern states increased by

,912, or 31.4%; this increase covering increase in farm homes of 30,449, or 16.7%; and other homes of 72,463, or 49.8%.

LONDON DEATH-RATES IN JANUARY.—Statistics recently published show that the total death-rate of London for January, 1915, was 19.6 per thousand inhabitants living. Among the several districts and boroughs, the highest rate was in Southwark, a populous southern quarter, the lowest was 14.2 in Hampstead, an open district on the north.

COMMISSION FOR THE ERADICATION OF TYPHUS AND CHOLERA.—The American Red Cross Society and the Rockefeller Foundation recently made a joint offer to Dr. Allan J. McLaughlin, Massachusetts State Commissioner of Health, to go to Serbia as the administrative head of a commission for the eradication of typhus fever and Asiatic cholera. The funds necessary to finance this expedition were to be furnished partly by the Red Cross, partly by the Rockefeller Foundation, and partly by the Serbian government. Interesting and important though this expedition is, it is a matter of consultation and good fortune for the Commonwealth of Massachusetts that Dr. McLaughlin decided to decline this opportunity.

The position was next offered to Dr. Richard Strong, professor of tropical diseases in the Harvard Medical School and has been accepted by him. Dr. Strong sailed, on March 17, for Europe, as a member of the Harvard expedition—unit destined for service at the American Ambulance Hospital in Neuilly, Paris. It is surmised, however, that after landing at Marseilles he will proceed instead to Serbia. It is announced by the Red Cross that the necessary sum of \$50,000 has been procured for carrying out the work of this sanitary commission. The other personnel of the commission of which Dr. Strong is the head, will be as follows:—Chief sanitary inspector, Dr. Thomas W. Henshaw of Philadelphia; bacteriologist, Dr. Louis Zinsser, professor of bacteriology, Columbia University; clinical laboratory assistant, Dr. Andrew W. Sellards of the Harvard Medical School; clinical assistant, Dr. George C. Shattuck of the Harvard Medical School; assistant sanitary inspector, Dr. Francis B. Grinnell of the Harvard Medical School. Dr. Nicolle, the French expert on typhus, has been invited to cooperate with the commission. Charles S. Elby of Washington, lately connected with the United States immigration service, is disbursing officer and secretary.

PROMOTION OF DR. GORGAS.—It is announced from Washington, D.C., that Surgeon-General William C. Gorgas, U.S.A., has been promoted to be a major-general in the medical department.

AWARD OF THE BERLINER FELLOWSHIP.—It is announced that the Sarah Berliner fellowship

for women has been awarded to Dr. Janet T. Howell, a graduate of the Johns Hopkins University. This fellowship of \$1000 enables the recipient to engage in research in physics, chemistry or biology.

AMERICAN POSTURE LEAGUE.—The second annual meeting of the American Posture League was held in New York on March 13. Dr. Joel E. Goldthwait of Boston, vice-president of the league, delivered the leading address, on "Recognition of the Different Anatomic Types in the Understanding of Special Postures." Other addresses were delivered by Drs. William A. Howe, S. Josephine Baker, Anna L. Brown, Eliza M. Mosher, Henry L. Taylor and Percy W. Roberts of New York, and by Dr. F. R. Green of Chicago. The central committee on public health organizations, which met in New York on the same date and several of whose members are officers of the Posture League, also attended the meeting and the luncheon which preceded it. A meeting of the directors was held earlier in the day for the election of officers.

NATIONAL RADIUM INSTITUTE.—Report from Washington, D. C., on March 12, states that a second instalment of radium bromide, valued at \$19,000, prepared by the federal bureau of mines at Denver, Colo., has been turned over to the national radium institute for use in the treatment of cancer and other affections.

FREE VACCINATION FOR GOVERNMENT EMPLOYEES.—Report from Washington, D.C., on Mar. 13, states that the treasury department has directed the medical officers of the United States Public Health Service to provide free vaccination against smallpox or typhoid fever, or both, for all civil employees of the government engaged in interstate travel or in handling mail or other material for interstate traffic, whenever request for such vaccination is voluntarily made by the employees.

GRADUATE SCHOOL OF MEDICINE OF CHICAGO.—A report from Chicago on March 13 announces the proposed establishment in that city of a new and comprehensive school of medicine and sanitary science, to be known as the Graduate School of Medicine of Chicago. The foundation is expected to begin its work on May 1, and will have provision for 3000 students.

"The graduate school will not be conducted for pecuniary gain. Its sole object will be the advancement of medical science. Cook County physicians will receive post-graduate work free. Outside physicians will contribute a nominal sum. A central bureau will disseminate information regarding discoveries made and work accomplished. Eventually the foundation will be under the control of the large universities of Illinois, thus eliminating any politics or commercialism. No favors will be shown any faction of the medical profession. Already 250

'teaching' physicians and surgeons in all branches of the medical profession have tendered their services as instructors. More than 100 more are to be selected, each regarded as an authority. The foundation will be composed of a number of hospitals, sanatoria, and laboratories in Cook County. It is proposed to have departments of both curative and preventive medicine.

PHILADELPHIA DEATH-RATES IN 1914.—A recently published monthly bulletin of the Philadelphia Board of Health summarizes the monthly statistics of that city for the year 1914. The total death-rate for this period was 16.5 per thousand, an increase of 0.5 over 1913. Several diseases showed an increased incidence also over the preceding year. Of the preventable diseases, pertussis increased 39%, influenza 48%, tuberculosis 4%, infantile diarrhea 18%, and pneumonia 14%. Of diseases not amenable to control, heart disease showed an increase of 7% over 1913, nephritis 2%, and apoplexy 9%. On the other hand, typhoid fever showed a diminution of 51%, scarlet fever 20%, diphtheria 7% and measles 63%.

EUROPEAN WAR NOTES.—Report from New York on March 13 states that a gift of \$15,000 has been received in Philadelphia, enabling the medical school of the University of Pennsylvania to endow, for three months, a ward of forty beds at the American Ambulance Hospital at Paris.

Report from London on March 16 states that since the beginning of the war the loss of British horses has been at the rate of only 15% per annum, as compared with the loss of between 55% and 60% per annum in the South African war. This loss is more largely due to pleuropneumonia.

On March 19 the total of the New York Belgian relief fund amounted to \$981,831.64; the New York Jewish relief fund to \$573,267.00; the New York Red Cross fund to \$470,871.44; the American Ambulance Hospital fund to \$367,015.00; and the Prince of Wales fund to \$112,503.59.

On March 20 the total of the New England Belgian relief fund amounted to \$236,431.76; the Massachusetts Red Cross fund to \$112,691.30; the Boston Jewish relief fund to \$48,907.70; and the Boston German relief fund to \$26,035.84.

BOSTON AND NEW ENGLAND.

MEASLES AND PERTUSSIS IN WAKEFIELD.—Report from Wakefield, Mass., on March 14 states that measles and whooping cough are, at present, epidemic in that town. Over 125 cases of measles have recently been reported, and it is expected that it will be necessary to close several of the local schools.

BOSTON DISPENSARY.—A recent report of the Boston Dispensary states that the number of patients who visited that institution during the month of February, 1915, was 8251, a marked increase over the preceding month and the corresponding month of last year.

PREVENTION OF CANCER.—On Wednesday afternoon, March 10, Dr. Edward Reynolds of Boston, vice-president of the American Society for the Control of Cancer, delivered an address on the prevention of cancer before a meeting under the auspices of the committee of the American Medical Association on public health education and the department of public health of the Women's Municipal League of Boston. The total mortality from cancer in the United States in 1913 was about 75,000. A considerable number of such deaths may be regarded as preventable. On Wednesday afternoon, March 17, Dr. Joseph L. Goodale, of Boston, spoke under the same auspices on "Some Disturbances of the Nose and Throat Which Impair Efficiency."

REPORT OF THE BUTLER HOSPITAL.—The recently published seventy-first annual report of the Butler Hospital of Providence, R. I., records the work and progress of that institution for the calendar year 1914. During this period 258 patients were treated in the hospital with only 20 deaths. Several important special methods of treatment were particularly tested, especially the use of salvarsanized serum in general paresis and tabes. Twenty nurses were graduated from the training school. The superintendent's report emphasizes the urgent need of an adequately equipped gymnasium, and the trustee call attention to the work already done in the way of fire protection and the need of important new outbuildings.

STATE CONFERENCE ON TUBERCULOSIS.—"What the Anti-Tuberculosis Organizations Can Do to Help the State Department of Health," is the subject to be discussed by the Commissioner of Health, Dr. Allan J. McLaughlin, at the first annual meeting and all-day conference of the Massachusetts Anti-Tuberculosis League, to be held at the Twentieth Century Club, 3 Joy Street, Boston, Thursday, April 1, 1915. The Secretary of the Trustees of the Massachusetts Hospitals for Consumptives, Dr. John B. Hawes, 2nd, will speak on "The Situation in regard to the New Tuberculosis Hospitals," and Dr. Walter G. Phippen of Salem will give some interesting facts in regard to the local tuberculosis dispensaries, required by law. At the afternoon session, to be held at 2.30, Dr. Walter P. Bowditch of Clinton will speak on "The Reporting of Tuberculosis by Physicians," and Michael M. Davis, Jr., director of the Boston Dispensary will discuss "Tuberculosis Associations and Health Educators." "The Responsibility and Opportunity of the Teacher in Preventing Tuberculosis" will be the subject of the evening session.

culosis" is to be treated by Dr. Thomas F. Harrington, director of school hygiene, Boston, followed by an address on "Inspection of School Children," by Dr. Francis L. Dunham of Brookline. The chief inspector of incorporated charities of the State Board of Charity, Miss Amy F. Fenton will tell of "Some Observations of the Anti-Tuberculosis Work in This State," after which a general summing up of the afternoon session will be made by Mrs. William H.throp of Newtonville. The conference is open to the public and will be in charge of its president, Dr. Vincent Y. Bowditch.

HARVARD UNIVERSITY REPORTS.—The recently published reports of the president and the treasurer of Harvard College include in the same volume, the reports of all the departments of the university for the academic year 1913-14. The president, in his report, calls attention to the opening of the Children's, Infants', Peter Bent Brigham and Collis P. Huntington Hospitals and to the appointment, by the United Fruit Company, of Dr. Strong as director of its hospitals in the West Indies and Central America. He also discusses various problems of internal organization of the Harvard Medical School, especially the questions of examinations and finance. Dr. Bradford's report, as dean of the Medical School, describes its activities during the year and refers in detail to the work of the several departments. He presents an interesting table, showing the comparative standing of the members of each class in the school at oral examinations during the five years from 1910 to 1914, inclusive. Dr. Horace D. Arnold, in his report as dean of the Graduate School of Medicine, calls attention to the slight falling off in the number of students and receipts from the previous year, due apparently, to the general financial situation and to the European War. The report of the dental school, by Dr. Eugene J. Smith, summarizes the instruction and the clinical work in dentistry done at the school. During the year a total of 23,936 operations were performed by students and instructors in the school.

REPORT OF BOSTON MEDICAL LIBRARY.—The recently published thirty-ninth annual report of the Boston Medical Library records the activities of that institution for the year 1914. During this period there has been a net gain in membership of 42, and an increase of 4195 volumes and 984 pamphlets in the library.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending March 16, 1915: Diphtheria, 78, of which 2 were non-residents; scarlatina, 72, of which 10 were non-residents; typhoid fever 1, which was non-resident; measles, 167; tuberculosis, 56. The death-rate of the reported deaths for the week was 17.63.

Obituary

RIGHT HON. SIR GEORGE TURNER.
F.C.M.G., M.D. LL.D.

THE RIGHT HONORABLE DR. SIR GEORGE TURNER, F.C.M.G., has recently died at Colyton, Devonshire, England, of leprosy contracted during his research work on that disease in South Africa. He was born at Melbourne, Victoria, on August 8, 1851, and received his medical education in that country, where he became prominent also in public life as a member of parliament, minister of customs, minister of health, minister of defence, and solicitor general. In 1894 he became premier and served also as president of the federal council of Australasia, chairman of its standing committee, and member of the Australian national federal convention. In 1901 he became treasurer of the Australian federal government.

Dr. Turner's most important medical work was done in South Africa, where he discovered the serum by means of which the rinderpest was eradicated. He served in a medical capacity during the Boer War and arrested an epidemic of typhoid fever, which was sweeping the military hospitals and concentration camps at that time. In 1901, while supervising the suppression of the second great epizootic of rinderpest, he became interested in the study of leprosy in the leper asylum in Pretoria, where there were nearly one hundred Dutch and native patients. It was during this work, which Dr. Turner pursued for several years, that he himself contracted leprosy, after which he withdrew from his public offices and devoted himself solely to the study of that disease. A few years ago he finally returned to England, where he settled in a country estate in Devonshire, to await the end.

For his public services Dr. Turner was created a baronet in 1897. He is survived by his widow.

Miscellany.

MEDICAL EDUCATION IN CHINA.

IN the issue of the JOURNAL for March 11 we commented editorially on the work and recent progress of the Yale-in-China Medical School. On March 4 a letter from Dr. Edward H. Hume, chief of the medical department of Yale-in-China, outlined, in a New Haven publication, plans for the new Yale Hospital at Hunan, China.

A campus is being planned for which twenty acres of land have been purchased outside the city wall of Changsha, and \$56,000 has been raised by Yale men to construct buildings

on the plot. The Yale Hospital will be built on this campus, and a well-known firm of New York architects has already drawn plans for the buildings, which include, beside the hospital building, a dormitory, chapel and four buildings for professors.

"For eight years the Yale College in China has been carrying on its work within the city walls in crowded, unsanitary quarters. There are now enrolled 140 pupils in the school and college. Recently interest in this oriental branch of Yale College has become so manifest that many alumni gifts have been forthcoming. The hospital is the gift of a well-known Yale man."

Interest in occidental medical education in China is not limited either to Yale or to Harvard, though these have been the first American universities to establish and maintain hospitals and schools of medicine in that country. On March 7 it was announced in New York that the Rockefeller Foundation has decided to undertake a comprehensive plan for the improvement of medical and hospital conditions in China.

"For this purpose the Foundation has established a special organization to be known as 'The China Medical Board of the Rockefeller Foundation,' and plans as the first step toward effective work the development in China of medical education. This will include aid for the two or more medical schools in China, described as inadequately equipped, the strengthening of the staffs of the mission and other hospitals, assistance in the establishment of two modern tuberculosis hospitals, and the establishment of six \$1000 scholarships, with travelling expenses, to enable Chinese graduates in medicine to prosecute further studies abroad, and of five scholarships to enable Chinese nurses to obtain training in this country."

In the establishment of these fellowships the purpose of the Foundation is to organize a body of Chinese physicians who in time will be able to assume leadership in teaching the medical sciences in their own country.

The action of the Foundation was based on the report of its special commission which, last year, made a personal study of the conditions of public health and medical practice in China.

"The commission was composed of Harry Pratt Judson, president of the University of Chicago; Dr. Francis W. Peabody of the Medical School of Harvard University; and Roger S. Greene, then consul general of the United States at Hankow.

"The China Medical Commission made numerous recommendations designed to meet the situation systematically, one of the primary ideas underlying the whole plan being to enlist the actual coöperation of both the missionary agencies and the Chinese people.

"The report of the commission has in its gen-

eral outline been adopted by the Foundation as a basis for its work in China. Details, however, will be studied separately and each project will be taken up for definite decision."

In the report of this commission it is pointed out that,

"Not only have many preventable and easily curable diseases prevailed there, almost unchecked, from the earliest days down to present times, but intercourse with foreign countries and modern methods of communication have introduced into regions previously unaffected such scourges as bubonic plague and have contributed largely to the spread of other dangerous infections. So also have modern systems of transportation and of industry brought in an entirely new series of accidents and occupational diseases with which Chinese civilization is not yet prepared to cope. A special obligation, therefore, rests upon Western civilization to mitigate this suffering, for part of which it may be held directly responsible."

The personnel of the China medical board is further announced as follows:—

"John D. Rockefeller, Jr., chairman; Wallace Buttrick, director; President Harry Pratt Judson, President Frank J. Goodnow, Dr. Simon Flexner, Wickliffe Rose, Jerome D. Greene, Starr J. Murphy, John R. Mott, Dr. Francis W. Peabody, Dr. William H. Welch, Frederick T. Gates, E. C. Sage is secretary of the board, and Roger S. Greene is to be the resident director in China.

"The director of the board will have general administrative supervision over all its activities and particularly over the home office in New York. The resident director in China will have his headquarters in Peking.

"The plan outlined by the commission looks forward to the development of medical education in China as the first step toward effective work. Before hospitals can be established in large numbers, and before extensive work in public health and preventive medicine can be done, a large body of well trained doctors qualified to man hospitals and to administer public health measures must be secured.

"With a view to giving Chinese graduates in medicine opportunity to obtain their hospital training under proper supervision and to practice under favorable conditions, the Foundation intends to strengthen the staffs of the mission hospitals and other hospitals already existing in the vicinity of the medical schools aided.

"In hospitals thus more fully manned, young Chinese doctors will be employed as house officers or as visiting physicians, their compensation, when judged necessary, being paid by the Foundation. It is hoped that an intimate relation may be established between these hospitals and the medical schools near which they are located.

"It is proposed to enable the missionary societies to send out a larger number of well-trained nurses. An appropriation has also been made

or five nursing scholarships to enable Chinese nurses to come to the United States and secure first-class training at some of the leading schools in this country. A small appropriation has been made for the translation of nursing text-books, and aid may be given to some nurses' training schools.

"China suffers very greatly from tuberculosis, and has at present no institution specially equipped for the treatment of this disease. The Commission, therefore, recommends that the foundation assist in the establishment of two model tuberculosis hospitals built and equipped according to the best modern practice."

Correspondence.

PARIS LETTER.

THE WOUNDED ON THE FRENCH BATTLE LINE.

(From Our Special Correspondent.)

PARIS, February 17, 1915.

Mr. Editor: In my last letter I endeavored to convey some idea of the state of humiliation into which this horrible war has plunged the surgical fraternity; may next be of interest to inquire a little into the question of the causes of this lamentable overthrow. But first let us look at a few real scenes representing what actually takes place on a battlefield of today. About a year ago a maid I had had for some time married a non-commissioned officer of artillery. This man appeared to me to be quite a decent chap, but very much like the ordinary run of men of that class, good-looking, with a big moustache and becoming uniform. He left at once for the Luxemburg front at the outbreak of war with his battery of seventy-fives, and ever since that time has been sending his wife letters that show me how deeply mistaken I was in my estimate of this young fellow, who is something quite out of the ordinary. He began up at once in all the early frontier fighting, retreated with his guns from position to position, had his horse shot down to pieces beneath him, was promoted, and ended up at the battle of the Marne where for five days and nights his cannon hurled death and destruction into the ranks of the Germans. Since that time his battery has seen less active service. He writes to me on quires, in a small neat hand, and in a style that is quite extraordinary for a man in that station; his long and minute descriptions of the fighting are so real that you can almost fancy yourself present; and they are interspersed at intervals with lurid and sulphurous curses and execrations of the enemy that ought to have set the mail-pouch on fire, alternating with transports of love, poetry and sentiment for the young wife he had to leave so soon behind him, and patriotic and religious effusions. The whole thing makes a mixture such as I imagine was never seen in print before, and I have strongly advised the young woman to keep these letters for possible literary use. In the meantime here are a few extracts concerning the effects of artillery fire, as an illustration of the fact which must always be borne in mind in speaking of the surgery of this war, that it is a *war of artillery*, whereas rifle fire has been relegated altogether to a lower plane.

After describing the death of his adjutant, who with his horse was simply blown to bits, so much so that they could hardly find enough of him to warrant

burial, he continues: "I was sent ahead to reconnoitre, and after fastening my horse to a tree, crawled as flat as I could on all fours for several hundred yards, fearfully bothered and scratched by the briars that seemed to be everywhere. Finally I reached a hummock from which I could make out through the glass masses of German infantry and artillery crouching and hiding in some outfields near a wood. Signalling this back to the captain of the guns, which had been masked separately here and there, they at once opened fire. *Never* shall I forget those outfields! We felt for the exact range with shrapnel, and as soon as we had got it we let them have it with high explosion shell! Ah! the horrors of war. . . arms, feet, fragments of bodies danced and flew in the air; we rallied and we mowed; other cannon and batteries joined in, and we hid them all under trees, or covered them with fresh branches, so that the enemy's aeroplane could not spot us. The Germans, on their side, 'watered' our region with heavy guns, but without finding us; a wood interfered with their work, so that their shells passed over and back of us. In three hours' time we killed upwards of 2000 of the troops discovered in those fields; three-quarters of them must have remained there for good, only a small portion having the courage to rise and make a bolt for it, so terrible was the effect of our shell-fire."

Later on; the same day.

"The Captain sends me for orders to the major, and then to the general, and we are informed that two kilometres to our left four mitrailleuses are onto our infantry and doing much damage. We leave our position at full trot, and take up another one, and then once more we give it to them with melinite shells. . . melinite shells, . . let her go, boys! I am lying on a ridge 300 metres in front of our cannon, in observation with the captain, who is now beyond shouting, his voice having given out; so he tells me the elevations and corrections and I yell them back to the guns. We are next notified that some German infantry is massed in a ravine in a certain direction, so we lengthen our range, and *roôff!* . . *roôff!* . . on it goes! The enemy is finally driven out, and our men of the line find 800 dead in that place, with three mitrailleuses out of service."

And so he continues, by the chapter. When he has written himself dry one day he closes and takes the story up in his next. At the Marne a big German shell falls right among his "avant-trains" (horses and caissons), hurling him head over heels in a cloud of asphyxiating smoke; but he picks himself up without a scratch, to find four of his gunners laid out, three severely wounded. Another shot kills nine horses and sets the shells in his caisson aburning; "but," he explains to his wife, "as they were not 'set' they merely burned with a yellow fume, and did not explode!" According to the German casualty lists, in some of those early encounters, when they simply hurled on battalion after battalion in massed formation against such fire as this, certain regiments lost 2500, 2800, 3000 and over, out of their approximate 4000. At one of the battles on the Meuse a French artillery officer wrote that *for seven consecutive hours* his guns fired into visible masses of Germans, until men and officers were utterly exhausted and practically deaf! Such tales as these enable us to understand that in this conflict the casualty lists have been something altogether unprecedented: after the battle of the Marne the French are said to have had upwards of 110,000 wounded to cope with, and the entire losses of the Germans are now certainly well up in their second million,—in fact they were authoritatively reported recently in the House of Commons as 2,250,000. These accounts also enable us to understand what the nature of a large part of these wounds must be. The modern rifle-wound, that does not kill outright, is a fairly safe investment; the force of penetration of the shrapnel ball is slight, and can be stopped by a helmet, tin-can, or even leather strap,—so that if you do not happen to be directly in the axis of progression

of the projectile itself previous to explosion, your chances here are still fair; but the melinite, high-explosive obus of the French artillery is a *terrible* affair, and when the war is over the Germans will have something interesting to report on this score!

There has been a pretty widespread feeling among people here as regards the handling of the French wounded; all has not been altogether as it should be, in this war. All reports agree that the soldiers have been *admirably* fed, and that they have been well looked after, in general, as regards outfit, munitions, and even comforts; so that everything has gone as well as it could in wartime, until a man had the misfortune to be wounded,—from then on accounts have been less satisfactory. To such a point has this feeling been carried that a *député*, himself under arms, told me personally that he had tackled the head of the Service de Santé one day, and wagging his finger offensively under his nose, had said to him: "Monsieur! the day when some French mother *kills* you, she will have rendered service to her country." I don't believe myself that this fellow ever did anything of the sort, because if he had the other chap would have knocked his head off then and there; I merely cite the incident to show how he felt on the matter. On the other hand, the army medical department claims that they were utterly swamped; that no one ever expected to have to handle such quantities of wounded. I read in the papers that at one period, on the western scene of war only, the wounded were pouring back to Germany at the rate of forty to fifty thousand *per week*. However, all this may be, let us take a given man, wounded on the battlefield, and see what is likely to become of him, in *our* neighborhood: this may lead us to some explanation of this universal suppuration, with gangrene and tetanus.

Not only has a large percentage of wounds in this war been due to bursting shells, but the situation of the wounded has been made infinitely more serious by the increased range of modern arms, and by the aeroplane. The depth of the danger zone back of the actual firing-line is now several kilometres, and, save when your own side happens to be advancing pretty steadily, any such thing as first-aid or stretcher work *during the daytime* is practically out of the question,—it cannot be undertaken until night, and even then often at the greatest risk, with all these aerial flares, and searchlights, as the melancholy tale of killed and wounded among the army-surgeons reveals only too plainly. Consequently, the wounded man must either bandage himself with his emergency-dressing, or call on a comrade to do so. I do not know whether this dressing has been modified or not; but certainly in the early part of the war it was quite insufficient for anything except the simplest of wounds, bullet wounds of the hand, fore-arm, foot, etc. For wounds of the thigh, shoulder, thorax and even head, it proved quite inadequate; everyone knows how much material is necessary for a thigh or thorax wound.

Again. Although everyone has been using tincture of iodine over here for years now as an emergency antiseptic, the war had been in progress a good three months before it occurred to anyone that it might be a good thing to add a little tube of this material to the soldier's emergency package; and even when this was done the tube was really too small for serious shell wounds. A man with part of his thigh or hip blown away was not likely to derive much protection from a tiny tube containing one c.c. of tincture of iodine, yet these were really the men who needed it, as the bullet and shrapnel wounds, as a general thing, were fairly clean and took care of themselves.

According to schedule the wounded man was supposed to make his way in some manner or other to the *poste de premier secours*, whence he was to be forwarded to the supporting ambulance, and from there to the nearest evacuation railroad station. This looked very nice on paper; but with a battle-front of

some hundreds of kilometres, and with the wounded piling up at the rate they did during active operations, one does not need to have a very active imagination to realize what actually occurred. Badly wounded men, with farcical dressings or none whatever, lay for days before they were found at all. Such as reached the ambulance accumulated there, the staff was overwhelmed, and supplies gave out. It was found that the devices for clearing out the ambulance wounded and getting them off to partial salvation, the railroad, were quite inadequate; such motor ambulances as existed were too big and too heavy, what was required being a small, handy, light affair, that could go over any kind of ground and turn round on a five-franc piece. Even when these wretched creatures reached the trains, their troubles were not even half over! A general's problem is first to have troops, and to supply them with all the munitions they require; secondly, to feed them properly; and only in the third place, and when *everything* else has been seen to, can he think of his waste, the wounded! The result can be imagined. The wounded had to be put in such care as was available, and had to be transported on the devil's own schedule,—that is, every other sort of train, of whatever description, had the right of way against them. When Joffre was in a hurry he sent his troop-trains along *both* tracks, that is, on both the up and down lines; consequently every train of wounded had to be on a siding until the entire strategic movement had taken place! Now as they were pretty usually freight cars, without the slightest pretence to a convenience, non-intercommunicating, and very often without surgeons, nurses, dressings or food,—you can once more let your imagination dwell on the situation and see the tableau. One of the members of the medical society here reported recently an instance in which a consignment of typhoid cases had been *five days* on their way to Paris from the front, an actual running distance in time of peace of between two hours as a minimum and five as a maximum; these patients appear to have had no care of any kind under way, not even enough to drink, and the mouths of several of them were in such a state on arrival that they developed suppurative parotitis from which they died.

Quantities of wounded were evacuated in trains that had transported cavalry and artillery. Furthermore, at all points where a damming up of patients occurred, there was no question of beds for them, of course, and they were put in every available quarters, usually on straw,—in box-cars, canal-boats, churches, freight-sheds, etc. Is it, then, any wonder that those hundreds of cases of tetanus occurred, with the disorder's well-known, frightful mortality? Nor had any provision been made for an adequate supply of anti-tetanic serum, nor was it in the proper place, in the very first line,—since its only action is as a preventive. It is rather a curious point to know that tetanus has developed in men without any wound whatever; I know of a case in which a man died from tetanus after a simple frostbite of the foot; and Sicard recently reported three other similar instances! This really seems like hard luck.

However, supposing our man past all the obstacles already referred to, was he then in a safe harbour? I am very much afraid not. The greater part of this work consisted in the most serious form of major surgery,—the very biggest thing of its kind. Now I need scarcely remark that under ordinary circumstances really first-class surgeons are few and far between, and that even the cream of these have never seen such butchery as they have been up against daily since the war began. These men, therefore, could not even *begin* to cover the ground, and by far the larger part of the wounded had consequently to be turned over to just pretty much anybody. Up to a certain point this was of course an ineluctable necessity; it was not possible to keep on hand a sufficient number of trained surgeons for the eventuality of such a war as this. But there is a side to the question that has

hitherto not been made clear to me. That in the early stages of the war, when Paris was actually menaced, the authorities should have been opposed to letting the wounded be brought to the capital, where were all the facilities and highest skill, is more than comprehensible; but that this should have continued to be the case all through the war, is quite beyond my mental grasp. Numbers of well-equipped and well-staffed ambulances in this city have been given up, because they never saw a soldier. The administration's main idea seems to be, *anywhere* rather than Paris! It is fair to presume that there must be grounds for this attitude; but they are certainly not apparent to the man in the street.

We now come to the final point in this matter,—the nursing of the wounded. Here we are on terribly dangerous soil; walking on egg-shells is mere child's play by the side of this burning question. It has, of course, long been known that these people have not kept pace with other countries in matters of nursing the sick. Be the reasons what they may, the fact is incontrovertible, and admitted by them without circumlocution. Physicians who have spent any time in the wards of a Paris hospital have seen for themselves how matters stand there in time of peace; and anyone who has practised here knows about what goes on in cases of illness in private houses. With a view to meeting the demand that everyone foresaw must arise in the event of war, a variety of women's organizations were formed, some social, others religious and still others among ladies merely desirous of being of use and of doing their duty in the hour of need. Everyone recognized the devotion, willingness, energy and heart that these ladies have put into their almost superhuman task; but I think that just as everyone sees that the ordinary local practitioner, the man who under normal circumstances would pass a bad night in anticipation of the removal of a woman from his most valued patient, is absolutely incapable of rising to the emergency of the major surgery of warfare, so everyone now sees that no amount of kindness of heart or untiring zeal can take the place of the trained professional nurse at the bedside of a dangerously-wounded man. War-nursing does not consist in "the soothin' of fevered brows," as has been picturesquely remarked, and it is really necessary that a suitable nurse should know such details as which end of a bedpan to present to a bedridden patient. I refer here to an incident that actually occurred! In fact, if I may be allowed so to remark, I could here a tale unfold, but must refrain, the atmosphere being altogether too charged with electricity. It would not surprise me much if one of the happy outcomes of this dreadful war will be the introduction into France of the professional nurse as understood in England and America.

In conclusion,—I think that I have said enough, many, many times enough, to explain why the wounds in Paris suppurate, and why the surgical clan's pride is reposing humbly in the dust. "S."

PATENT MEDICINES AND QUACKERY.

BOSTON, MARCH 12, 1915.

Mr. Editor: Within a few weeks Mr. Norman Hapgood spoke before a representative body of physicians, complimenting them on their virtues as members of a noble profession, and frankly telling them of some of their faults. Mr. Hapgood is a staunch friend of the medical profession and should be no stranger to it. He is a standard bearer in our fight against Patent Medicines and Quackery. The *Journal of the American Medical Association* is doing notable work, but is hampered in its influence by being a medical publication. The medical profession certainly should not need education in the matter of the harmfulness of the nostrum. The exploitation of one "fake cure" after another, however, classifies the individual phy-

sician's previously vague information. Of vastly greater significance is the work done in the popular press which, as it were, hits the bull's eyes and is disseminated among the innocent victims of this great evil, who need education in the dangers of the patent medicine habit. The *Harper's Weekly* is prosecuting a vigorous fight against this monster. The medical profession by an intelligent and hearty cooperation could at least hold the mirror up so that the fighter might sever the Gorgon's head. As physicians we can aid by making individual conversions and by never again prescribing a patent article just because of its convenience. Of course it does not always do harm, but every additional bottle sold encourages somebody to make his own diagnosis and get to the stage where medical science cannot succor him.

The least we can do at once is to help Mr. Hapgood by subscribing to the *Harper's Weekly* and spreading the gospel to those in our waiting rooms.

Very truly yours,

HUGH P. GREELEY, M.D.

SOCIETY NOTICES.

NORFOLK SOUTH DISTRICT MEDICAL SOCIETY.—Meeting for medical improvement at United States Hotel, Boston, Thursday, April 1st, 1915, at 11:30 A. M.

Reader, John W. Lane, M.D., of Boston, Mass., for M. T. Sweeney, M.D., of Norfolk Downs. Subject: Appendicitis.

F. H. MERRIAM, Sec.,
South Braintree, Mass.

NEW ENGLAND OTOLOGICAL AND LARYNGOLOGICAL SOCIETY.—The next meeting of the New England Otological and Laryngological Society will be held on Tuesday evening, March 30th, at the Boston Medical Library at 8 o'clock. Program:

1. Gunshot Wound of Orbit and Pharynx, Dr. W. F. O'Reilly.
2. Fatal Hemorrhage Following Tonsil and Adenoid Operation, Dr. E. A. Crockett.
3. Death Immediately Following Tonsillectomy Under Local Anesthesia, Dr. D. Crosby Greene.
4. An Operation for Chronic Frontal Sinus Suppuration, Dr. Howard A. Lothrop (By invitation).
5. The Type of Voice in Tabes, Dr. W. B. Swift (By invitation).

WILLIAM F. KNOWLES, Sec.

NEW ENGLAND BRANCH OF THE AMERICAN UROLOGICAL ASSOCIATION.—There will be a meeting of the Society on Tuesday, March 30th, at 8.15 P. M., at the Harvard Club of Boston. Program:

1. Presentation of specimens, instruments, etc., and the report of cases.
2. Experimental and Clinical Observations on the Blood Pressure in Spinal Anesthesia, Dr. George G. Smith, Boston.
3. A New Preparation for Pyelography, illustrated, Dr. E. L. Young, Jr., Boston.
4. Some Unsettled Points in the Preparation for and Technic of Suprapubic Prostatectomy, Dr. Paul W. Pilcher, Brooklyn, N. Y. Discussion.

R. F. O'NEIL, M.D., Sec.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at the Boston Consumptives' Hospital, 249 River street, Mattapan, Tuesday, March 30th, at 3:30 P. M., sharp.

Tour of the Hospital, 3:30 to 5:00 P. M., business meeting and program, 5:00 P. M. Program:

1. The Organization and Management of the Consumptives' Hospital, Edwin A. Locke, M.D.
2. Relation of the Private Physician to the Out Patient Work of the Boston Consumptives' Hospital, Cleveland Floyd, M. D.
3. Tuberculosis in Children and Adults with New Aspects on the Von Pirquet Test, T. J. Murphy, M.D.

Dinner at 6:30 P. M.

The censors will meet May 13th, at 2:00 P. M., for the examination of candidates.

BRADFORD KENT, M.D., Sec.
798 Blue Hill Ave., Dorchester

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FROM FEB. 12, TO MARCH 13, 1915.

February 15. P. A. Surgeon H. W. Cole, detached, *San Diego to Colorado*.

February 15, Surgeon L. L. Von Wedekind, to Marine Recruiting Station, New York, N. Y.

Asst. Surgeon A. T. Weston, M.R.C., detached, Marine Recruiting Station, New York, N. Y.

February 23. Asst. Surgeon W. E. Stevens, commissioned, Jan. 23, 1915.

February 26, P. A. Surgeon H. F. Lawrence, detached, Hospital, Newport, to New York Hospital.

March 1, Surgeon C. E. Ryder, detached, *Cincinnati* to home, wait orders via March 15, Transport.

P. A. Surgeon Heber Butts, detached, *Monterey*; to home, wait orders, via April Transport.

Asst. Surgeon P. B. Ledbetter, detached, Naval Hospital, Olongapo, P. I., to home, wait orders, via March 15 Transport.

Asst. Surgeon R. H. Laning, detached, *Saratoga* to home, wait orders, via April 15 Transport.

Asst. Surgeon R. F. Jones, detached, Naval Hospital, Canacao, P. I. to home, wait orders.

March 3, P. A. Surgeon J. C. Parham, commissioned from July 7, 1914.

March 10, Surgeon H. C. Curl, detached, *West Virginia* to *Maryland*.

Surgeon J. D. Manchester, detached, *Maryland* to home, wait orders.

P. A. Surgeon J. C. Parham, detached, *St. Louis*, April 1, 1915, to home and wait orders.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING MARCH 13, 1915.

CONTRIBUTIONS.

Dr. Frank Slopanskey, Helper, Utah.....	\$ 5.00
McKees Rocks Med. Soc. McKees Rocks, Pa.....	6.50
Dr. James M. Anders, Philadelphia, Pa.....	15.00
Dr. Charles M. Green, Boston, Mass.....	25.00
Dr. J. M. Miller, Hickory, Pa.....	5.00
Dr. John Woodman, New York, N. Y.....	10.00
Dr. R. L. Bradley, Roswell, New Mexico....	5.00
Dr. Everett D. Peek, Thompson Falls, Mont..	25.00
Dr. Charles L. Minor, Asheville, N. C.....	15.00
J. M. H., Ft. Logan H. Roots, Ark.....	5.00
Dr. Fred E. Thompson, Detroit, Mich.....	25.00
Dr. Alfred H. Tickell, Nevada City, Cal.....	2.00
Dr. Z. H. McClanahan, Colorado Springs, Col.	5.00
Dr. C. Dunbar Roy, Atlanta, Ga.....	5.00
Hempstead Academy of Medicine, Portsmouth, Ohio	10.00
Dr. Halsey Beach Loder, Boston, Mass.....	5.00
Dr. and Mrs. James R. Judd, Honolulu, Hawaii	25.00
Dr. Hugh T. Patrick, Chicago, Ill.....	25.00

Receipts for week ending March 13..... \$ 218.50

Previously reported receipts..... 4611.50

Total receipts.....\$4830.00

Previously reported disbursements..\$4614.60

Disbursements week ending Mar. 13:

90 boxes of food @ \$2.30..... 207.00

Total disbursements \$4821.60

Balance \$8.40

F. F. SIMPSON, M.D., Treasurer,
7048 Jenkins Arcade Bldg.,
Pittsburg, Pa.

INTERSTATE ASSOCIATION OF ANESTHETISTS.

The Interstate Association of Anesthetists will hold its organization meeting in conjunction with the Ohio

State Medical Association in Cincinnati, Ohio, May 4-5, 1915, at which time an elaborate scientific program devoted exclusively to recent advances in anesthesia and analgesia will be presented.

Headquarters, assembly room and exhibits will be in the New Hotel Gibson, in which all the sections of the Ohio State Medical Association will also meet. An informal organization dinner will be served on the evening of May 4, after which the visiting anesthetists will be the guests at a smoker, of the local entertainment committee, headed by Dr. E. O. Smith. Visiting ladies will be entertained by Dr. Nora Crotty and her committee at a reception and theatre-party.

Anesthetists, surgical and dental, as well as interested surgeons and general practitioners who wish to participate in the proceedings are cordially invited to attend. For further information and dinner reservations address,

F. H. McMECHAN, M.D., Secretary,
1044 Wesley Ave., Cincinnati, Ohio.

SOCIETY NOTICE.

NEW ENGLAND PEDIATRIC SOCIETY.—The thirty-seventh meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, March 26, 1915, at 8.15 p.m.

The following papers will be read:

1. "The Management of Breast Feeding with Case Reports," Dr. C. K. Johnson, Burlington, Vt.
2. "Air and Water as Curative Agents," Dr. Roland G. Freeman, New York City.

Light refreshments will be served after the meeting.

E. M. BUCKINGHAM, M.D., Pres.
RICHARD M. SMITH, M.D., Sec.

APPOINTMENTS.

BOSTON DISPENSARY.—At the last meeting of the Board of Managers, the following appointments were made: Consultant pathologist, *Dr. Frank B. Mallory*; *Dr. Wolfert G. Webber*, assistant to physicians, General Medical Department; *Dr. Harold B. Eaton*, assistant to the physicians, General Medical Department; district physicians, *Dr. George H. Binney*; district physician, *Dr. William F. Temple, Jr.*

STATE HEALTH COUNCIL.—Governor Walsh has appointed *Mr. William P. Nickerson* of Norwood, Mass., to succeed *Dr. Milton J. Rosenau* as a member of the Massachusetts State Health Council.

RECENT DEATHS.

DR. HORACE THAXTER SEARS, who died of pneumonia in Boston recently, was born at Medfield, Mass., on May 10, 1867. After studying dentistry, he settled in Boston where he continued active in the practise of his profession until his death. He was unmarried.

DR. HENRY S. NOBLE, who died at Waterbury, Conn., on March 16, was born in 1844. He was a graduate of Tufts College and of the New York College of Physicians and Surgeons. Since 1900 he had been superintendent of the Connecticut State Hospital for the Insane.

BOOKS AND PAMPHLETS RECEIVED.

A Study of Locomotor Ataxia, by C. H. Burton, M.D., and Frank Burton, B.S.

Official Register of Harvard University. Reports of the President and the Treasurer of Harvard College, 1913-14.

Cystoscopy and Urethroscopy for General Practitioners, by Bransford Lewis, M.D., and Ernest G. Mark, M.D. P. Blakiston's Son & Co.

A Text-book of the Practice of Medicine, by Hobart Amory Hare, M.D. Lea & Febiger, 1915.

The Boston Medical and Surgical Journal

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Addresses.

CHARLES SEDGWICK MINOT, M.D.*

By W. T. PORTER, M.D., LL.D., BOSTON.

CIRCUMSTANCES, which should have prevented the career of Charles Sedgwick Minot, contributed largely to its success—the usual paradox. He was born not merely a Bostonian, but a legendary Bostonian. All the crushing disadvantages of an assured position, binding traditions, and a competence, were his. The times themselves were not propitious. The range of thought was narrow. Boston was no longer distinctively a caravan route. Strange cargoes were less frequent. The China seas widened fewer horizons. New people were coming in, floating on the tides of unearned increment. Hardy explorers from the fabled West discovered the North Shore. The old society, solicitous for a point of view justly regarded precious, took refuge in its trenches. The use of Christian names in conversation rose from a convenience to a shibboleth. The spirit of the times was aptly characterized by the President of Harvard University, when he called the Harvard Medical School of that period a dinner club. Those were provincial days in town and nation.

Much may be said of the charm and indeed the real value of limited societies, but they are unfavorable to the development of original minds. On the other hand, once the inertia of position is overcome, the virtues of these particular defects are admirably sustaining. No doubt the Bostonian of literature was a creature never seen on land or sea, yet the Boston spirit was

nevertheless a living force. There rests not the faintest doubt that a provincialism which pitched the note upon honesty of purpose, industry, and almost unexampled devotion to the public welfare, gave to the neophyte in science the indispensable weapons of his lifelong fight. In Minot's hands they were never tarnished; honesty, industry, and public spirit were undimmed to the end.

These attributes, though sufficient for salvation in the ordinary walks of life, are but the tools of thought. The priceless gift is the power to see how known phenomena may be so combined as to reveal new truth. In the last analysis, the setting of fruitful problems is an incommunicable art. Yet those who possess originality of mind can be greatly helped by men whose genius lies in this direction, or by their disciples. Still more may they be aided toward the invention of methods and the development of critical power. The higher knowledge, impossible of record, is an oral tradition. Minot received this tradition from H. P. Bowditch, Ranvier, and especially from Ludwig. Of his debt to all three, he was ever conscious. Ludwig he regarded with true veneration. In this, Minot was not alone. The illustrious Heidenhain said at Breslau that the only physiologists who had really accomplished anything were Ludwig and Marey. Ludwig kindled fires in every civilized country. The world owes him a great debt, still unpaid. His extraordinary powers as a ferment were coupled with an engaging simplicity. Shortly before his death, in his seventy-second year, he said: "The pity of it is, I shall have to leave off just when it becomes most interesting." Ludwig gave to Minot the secret of lifelong youth, the reward of those who continually voyage for discovery.

* Read at a meeting of the Boston Society for Medical Improvement, January 25, 1915.

Minot's first physiological work was a research with Professor Bowditch entitled, *The Influence of Anesthetics on the Vasomotor Centres*. It was published in the *BOSTON MEDICAL AND SURGICAL JOURNAL* in 1874, more than forty years ago. The experiments were probably largely by Minot, but the publication itself bears unmistakably the marks of Bowditch's lucid style and careful hand. In this investigation it was shown that "in the majority of cases the rise of blood tension consequent upon irritation of the saphena nerve is less marked when the animal is under the influence of ether or chloroform than when the anesthetics are not used." This result is due to a diminished activity of the vasomotor centre. Changes in the blood pressure were also noted. Ether causes a rise in the blood tension from 9 to 51 mm. of mercury, while chloroform causes a fall of from 8 to 37 mm. The action of chloroform on blood pressure is due in large part to its influence on the vasomotor centre and only in small part to enfeeblement of the heart.

While at Leipzig Dr. Minot worked under Ludwig's direction on the formation of carbon dioxide in resting and active muscle. This work was published in 1876 in the *Arbeiten aus der physiologischen Anstalt zu Leipzig*. An artificial circulation of blood serum was established through the biceps and the semitendinosus femoris at rest and during electrical excitation of the muscles. It was found that the carbon dioxide given off to the circulating serum was not increased by tetanizing the muscles. The conclusion was that carbon dioxide is not a decomposition product of muscular contraction. The methods employed in this investigation, though good for the time, are not altogether free from loopholes, and the conclusion reached is opposed to our present knowledge that the excretion of carbon dioxide is greatly increased by muscular contractions. It is therefore suspected that the carbon dioxide is after all set free in the muscles themselves, but the evidence is not conclusive.

In 1878 Dr. Minot published in the *Journal of Anatomy and Physiology* his experiments on tetanus, made in the Physiological Laboratory of the Harvard Medical School. They showed that when a muscle is forced to contract by a succession of induction shocks, the phenomena are essentially the same whether the interval between two shocks be several seconds or a small fraction of a single second. In other words, the difference between the various forms of muscular contraction depends merely upon the interval between the single shocks and the variations in the rate of the return of the muscle to its original length. This research was ingenious, laborious, meticulous, a conscientious collection of crumbs left by those earlier at the feast. It marks the end of Dr. Minot's first manner.

The paper on muscle contraction, like the two preceding papers, dealt with problems treated from a purely physical standpoint—an index of the times. Johannes Müller, that great genius who is justly called the Father of modern phys-

iology, had begun the good fight to place physiology among the true sciences, to express biological phenomena in grams, centimetres, and seconds. Helmholtz, von Brücke, Ludwig, and DuBois-Reymond completed his work. In my day, as a student in the University of Berlin, the Kneipe in which physiology was given its modern dress was still pointed out to reverent youth. The job was done most thoroughly—so thoroughly that, after a time, the method became somewhat irksome to persons not especially fitted to be sappers and miners. Whether the scholastic excesses of the physical school caused Minot's revolt or whether his apostasy from the rigid sectarianism was a consequence of new studies connected with his appointment to teach histology and embryology in the Harvard Medical School, I will not attempt to say. It is enough to know that he left his foster nurse for what was then called biology, a hybrid of physiology and anatomy, alleged at that time to have inherited the virtues but not the faults of both its parents.

It was a conscious and deliberate revolt. In that same year, 1890, he thus exalts the Egeria of his choice: "We should not study merely the organs of the body, whether in their anatomical or their functional relations. There are persons who never understand the arrangement which Nature has established. We are always separating things from their natural connection and taking up a special series of views, instead of more general ones. There is in the direction of true *general* biology, a vast opportunity which I hope will soon be generously taken advantage of. There are many things which we can hope to understand only when study is prosecuted from that point of view. All of the important phenomena of reproduction, of heredity, of the evolution of species, and of all the relations of actual organisms to the general economy of nature, of sex, of growth and variation, even of death itself, which is a problem I believe capable of scientific solution;—all these things are hidden away to a large extent from the morphologist and the physiologist, they are open to the general biologist." (*American Association for the Advancement of Science*, 1890, xxxix, p. 18.)

It is enough to say that this belief in the perfectibility of the very human biologist has not yet been realized. The hope was common in those days. The history of thought is strewn with broken dreams. They rise like the mirage. The weary traveller, toiling through arid facts, as numerous and as unrelated as the sands of the Sahara, sees afar off the shining lakes of Theory. There, on the horizon, is that which shall fit the desert to be the abode of men. The traveller presses on. The mirage dissolves, and from afar the sphinx, inscrutable, looks down upon the immemorial sand. The biologist may dress himself tastefully in the plumage of the physiologist and the anatomist, but this will not create him a new species. Dr. Minot remained essentially a physiologist all his life, though, like many physiologists, he worked from time to time on structure.

His devotion to morphology had probably a deeper source than his special chair in Harvard University. In his youth, the stamp of Ludwig's genius gave his mind a lasting impression. Many years after the Leipzig days, Minot, in a public letter to Mosso, declared that from Ludwig he "had learned to regard the living organism as an apparatus, of which it was necessary to learn both the construction and the working, and always to seek the explanation of the working on the basis of the construction." In Ludwig's generation this passed for truth. So artists once painted portraits by drawing the features and afterwards coloring them. They did not know that the lines of a face are not lines, but the edges of fields of light. Vermeer marks the eye by a clear light upon the lid and a patch of shadow beneath it. The eye is there in unsurpassed perfection and not a line is drawn. Experience has shown that structure is an unsafe guide to function. Anatomy led the infant physiology by the hand and taught the gifted child some lessons that did not stand the test of experience. It was from the anatomist, for example, that physiologists got the notion that the respiratory centre must be a circumscribed group of nerve cells like the nucleus of the hypoglossus. Eight physiologists found this centre each in a different part of the bulb. Later investigators removed each of these centres, but respiration still went on. So it was proved that a community of function may exist in widely separated cells. A physiological centre may or may not be a group of cells closely related in space; it need only be a group closely related in function. But Ludwig's view was orthodox in his day, and powerfully influenced his disciples.

We suspect that in his heart Dr. Minot concealed a regret that he could not become a philosopher. In his letter to Mosso he says: "The agnostic position is the only possible and defensible one for a scientific man to occupy, who is loyal to the spirit of research.—No hypothesis of life yet offered requires serious scientific consideration. A confession of agnosticism is here a positive contribution to the truth. On the other hand, there is no reason for giving up the endeavor to get nearer to the final goal of biology because attempts to reach it by the short cut of speculation have always failed."

He was we perceive, wise enough to bind himself fast to the mast of demonstrable fact, before he listened to the ravishing song of the sirens of philosophy. There is a brave optimism in his search for an answer to the problem of life. We applaud the bold adventurer the more, because he has set his face against the disheartening conclusion that there is, at present, perhaps no logical hope that the Grail of physiological science can ever be found. The physiologist who seeks the key of life must proceed from established premises. The established data show that the biological scene is a succession of permutations, of momentary equilibriums, of resultants ex-

pressing the interaction of a multitude of factors. But as soon as the individual factors rise above a number so small as to constitute the major criticism upon our petty minds—we speak of chance. It is probable that the riddle of existence will never be solved, because the factors and their possible interactions exceed the apparatus for their detection. No mental gifts will ever make us hear the high-pitched sounds audible to insects, nor shall we ever listen to the music of the spheres.

Dr. Minot began his new scientific life by a study of growth, senescence, and death, subjects which occupied him for thirty years. Very likely he was first attracted to this field by the memorable researches of Dr. Bowditch on the growth of children. Dr. Bowditch often lamented that measurements of children in statistical quantities could hardly be obtained before and after the school age. Nor was it possible to follow month by month the growth of thousands of individuals from birth to maturity. Dr. Minot determined therefore to study growth as a function of age in one of the higher vertebrates other than man. His observations were begun in the physiological laboratory of the Harvard Medical School about 1885. Hundreds of guinea-pigs were weighed every day from birth up to 40 days, then every fifth day up to 215 days, then three times a month to the end of the second year after birth. Most of the results of this great task were published in 1891, in the English *Journal of Physiology*. One of the most important fruits of these studies was the recognition of a new and more accurate method of expressing growth. All previous investigators had figured the absolute rate of growth, i.e. the growth of a child in any one year was the number of pounds gained in that year. Minot points out that five pounds gained by a small child is a greater gain than five pounds gained by a large child. The true rate of growth, he very rightly insists, is expressed by the relation between the growth in any one year and the weight at the beginning of that year. This is Minot's percentile rate of growth.

The principal fact developed in the paper of 1891 was that there is in guinea-pigs a progressive loss in the power of growth, extraordinarily rapid in the early hours of life. In the first forty-five days the ability to grow decreases four-fifths.

The work with guinea-pigs was followed by valuable studies on intra-uterine growth.

Eighteen years after his first publication on growth Dr. Minot summed up his studies in this direction in a book entitled *Age, Growth, and Death*. Here he demonstrates that the rate of growth is highest at segmentation and from that hour declines, at first with great rapidity and then more slowly. The period of most rapid decline is youth; the period of slowest decline is old age. If we consider death to be the bankruptcy of an organism which spends energy beyond its income, the final dissolution is almost

complete before the highly efficient life in the womb is exchanged for that in a much less favorable environment. The paradoxes demonstrated as truths by Dr. Minot's work show us how far from correct are the conventional ideas of life. Birth and death, the accumulation and the discharge of energy, go on unceasingly side by side. There are no terminal stations. Energy is a stream that empties into its source, and life is a function of time.

The book on Age, Growth, and Death treats also of Dr. Minot's views, first expressed in 1890, regarding the increase in the amount of protoplasm within the limits of single cells. By the study of the proportionate volumes of the nucleus and the cell body, he believed he could demonstrate certain laws governing that proportion, and prove that the variations of the proportion establish conditions which are fundamental to the correct conception of growth, differentiation, death, and sex. The most characteristic peculiarity of advancing age, of increasing development, is, in Dr. Minot's opinion, the relative growth of protoplasm. The possession of a large relative quantity of protoplasm is a sign of age. It is essential to rapid growth that the proportion of protoplasm should be small. The development of protoplasm, Dr. Minot taught, is the cause of the loss of power of growth.

It will be observed that this stimulating but incomplete list of Dr. Minot's services to physiology touches but one side of his activity. I have not spoken of his many valuable contributions to morphology, of his text-books, the first of which, especially, much enlarged the influence of the young science of embryology; of his admirable addresses at scientific meetings nor of his ingenious inventions such as the rocking microtome. Time does not serve, nor can one man speak with authority of services in so many fields. Perhaps the highest praise a man can have, is that his biography must be written by a company rather than by a single individual.

It remains to speak of Dr. Minot as a friend. But of his friendship and our personal relations I cannot trust myself to speak. He shone brightest in the adversity of his friends, both by his resolute bearing toward opponents and by his counsel. Of all the words I was privileged to have from him, I best remember his saying that a scientist should never consult his personal happiness and that injuries were best forgiven and forgotten.

I believe that Charles Sedgwick Minot, the friend, the comrade, the distinguished scientist in whose honor we are met, will be in death as in life a staff for the weak, a mark for the strong, a light to guide and cheer despondent men. The weak will see in him a triumph over circumstance; the strong will draw new strength from his unrenitting years of high endeavor; and the despondent, averting their sad eyes from the fields on which so many of our ideals have lately fallen, will find in his career fresh hope

and a renewed belief that life is after all worth living.

JAMES GREGORY MUMFORD, M.D.*

BY RICHARD C. CABOT, M.D., BOSTON.

AMONG those who knew James Gregory Mumford and realized his physical limitations, it has become a familiar miracle,—how he accomplished the enormous and varied work which stands today to his credit. But when one looks back over the remembrances of many years and pictures the man,—his looks, his voice, his manner, his build,—the victory over his own temperament seems even more remarkable than his conquest of physical handicaps. He was a reformer yet without many of the reformer's natural attributes. Of the reformer's traditional buoyancy and high spirits, he had not a trace. He was never buoyant or spontaneously expansive. He did not bubble over. He had none of the qualities of a steam roller; yet he was always pressing relentlessly on. He was thin-skinned, sensitive, shy and modest, yet he set himself to push through obstacles that would tear the average man to pieces.

Reformers are usually cock sure. Mumford was never so. He had almost an ironic consciousness of human fallibility,—in himself most of all. His plans and achievements never swept him away. He was their impelling force himself. In a letter written in 1910 to the secretary of his college class, he portrays his work without any of the reformer's ardor and confidence.

"So the simple record runs on," he says, "telling of mild employments in the Harvard Medical School and elsewhere. I like teaching; students pass me out the usual compliments due to credulous senility. (He was 47 when he thus described himself.) I like practising surgery; patients toss me roses mingled with thorns. I like writing about people and things, for the reviewers deal me comments which chasten the soul. Altogether, life continues a pleasant experience. I look forward with composure to the next twenty-five years."

Anyone who did not know his arduous achievements, his daring ideals, his ever-renewed battle with fate and conservatism, might gather from words like these,—indeed from most of his writings,—that he took life easily, smilingly, indulgently. His style has often the light, whimsical quality of one who looks on with tolerance and amusement at the crusading reformers. Yet he was himself a crusader and a reformer. His life never mirrored the easy-chair quality of his style; perhaps it was his way of resting from the sterner efforts of his medical career.

He had the look and manner of a recluse and I doubt if he was ever happier than when alone with his wife in the woods or by his library fire.

* Read at a meeting of the Boston Society for Medical Improvement, January 25, 1915.

The retiring, sensitive side of his nature must have shrunk even more than the average man's from the buffets of a reformer's existence. No one could have felt more keenly than he, for example, the crushing weight of newspaper criticism by medical colleagues, as for example at the time of his connection with the Medical Advisory Board of Emmanuel Church. For he did not love a fight. There was none of the glow of battle in his face. His convictions had not that tough, resistant consistency that makes some of us the surer that we are right when every one yells that we are wrong.

In this paradox we face the central mystery of his life. His was a fighting recluse, a sensitive militant, a shy reformer, a private spirited publicist, a tender footed pioneer. All this was especially marked in his later years. In school and college, the rift in his nature was less visible. It was then his scholarly and refined tastes, not his pioneering spirit, that impressed his friends. Yet his life-long conscientiousness is exemplified in the earliest of all the stories told of him. He was born in 1863. In 1867, when on a drive with his aunt in Rochester, he was shocked to see from the height of his four years of earthly experience, a clothes line still heavy with the week's washing, though the week was nearly over. "What! Friday, and the wash not yet done!"

That conscience,—a New York conscience, not a New England one by the way,—is, I take it, the key to unlock the mystery of his life. Conscience, not buoyancy, made him optimistic. Conscience, not fervor, pushed forward his reforms. Conscience is written into every entry of the journal where in 1879 he listed the books on the shelves of his first library at St. Paul's school. The handwriting is remarkably concise and neat for a boy of fourteen. This book list includes Mommsen, Thackeray, most of the English and American poets, Shakespeare, a good many books of travel, five volumes of the *Lives of Engineers* and a few modern novels. We cannot be sure that he had read them all, but many of them had been lent by him to other boys whose names, with the dates when they took and returned the books, are methodically recorded. I think a boy is more likely to have read the books that he lends,—especially when the boy is Jim Mumford.

This bookishness remained with him and grew with his growth from the passive to the active or creative mood. The list of his writings is impressive, even from its size.

Eight books,* aggregating nearly 3500 pages, came from his hand within twelve years, and during a slightly longer period, sixty articles in

medical journals. Many of these articles, such as that analysing 300 skull fractures, represented much labor. But the quality and style of this voluminous output makes it far more impressive. Mumford was one of the three or four American medical writers who has seriously tried to write good English. The German method of dumping words in piles upon a page and leaving the reader to deal with them as best he may, is that followed by practically all contemporary writers of American medicine. But this method never appealed to Mumford, who had left behind school-boy English before he left school, and ever after labored to make his writings justify the education which he had received.

As he was the only Bostonian who has ever produced a text-book on surgery, and as the current of his interests flowed strongly towards teaching, it can hardly have failed to be a disappointment to him that he never advanced beyond the rank of instructor at the Harvard Medical School.

But it is doubtful whether he would ever have desired to occupy the office of a professor of surgery, so long as that office remained what it was and still is. As early as 1906, nearly ten years ago, he foresaw the need of a surgical professor who should devote himself like other professors to his office. That a professor should never be obliged to devote a large proportion of his time to private practice in order to make a living, that he should not teach for a merely nominal salary and should give but a small part of his time to teaching or study, is now so generally realized that the anomaly will soon, I believe, be remedied in the Harvard Medical School. But in 1906,—nine years ago,—there were few who dared to hope for such a high standard of instruction. The amateur clinical teacher was the accepted and inevitable portion of every medical school but one in the country. That he saw years before the rest of us the step that medical teaching would take next, by making clinical professors full-time men, was entirely characteristic of the man. We shall find it true in all the great interests of his life.

One of those interests was religion. He was old-fashioned enough to believe in God, in marriage and in other eternal truths to which the excesses of modern enlightenment have for the time very generally blinded our eyes. He believed that the human body in sickness and in health is usually inhabited by a soul, and he cherished the still more unpopular belief that a man's soul may conceivably be as well known to a clergyman who had given it his life-long study as to a doctor who has studied it but fitfully and as a secondary interest. Believing this, he thought it not impossible that a clergyman might help a doctor. He never believed that a clergyman should practice medicine but he was firmly convinced that a doctor should not delude himself with the belief that he owns his patient. That the two professions could work

- * 1. Mumford Memoirs, 1900.
2. A Narrative of Medicine in America, 1903.
3. Clinical Talks on Minor Surgery, 1903.
4. Surgical Aspects of Digestive Disorders, 1905.
5. Surgical Memoirs and Other Essays, 1908.
6. The Practice of Surgery, 1910.
7. One Hundred Surgical Problems, 1911.
8. A Doctor's Table Talk, 1912.

He was also in editorial charge of the *History of the Harvard Medical School* (3 vols.) written by Dr. Thos. F. Harrington.

simultaneously for one patient's good was the belief underlying what was called some years ago the Emmanuel movement. Like Elwood Worcester, the leader of this movement, Mumford hoped that the doctors would be convinced of this. But they remained unconvinced and as a piece of genuine, widespread and whole-hearted coöperation between minister and doctor, the attempt failed, because the doctors, as a rule, had a low opinion of the ministers.

Nevertheless, I have no doubt that in this, as in his other hopes, Mumford was ahead of his age, in 1908-9, not behind it, and that in some form, his attempt will yet succeed.

Coöperation between doctor and minister was the ideal of this lost cause,—coöperation was also the key note of the next reform which in 1910 Dr. Mumford tried to effect. The Emergency Hospital (now Grace Hospital) on Kingston street, was then in the market. This hospital had always been managed upon a partially coöperative basis. That is, people paid a small fee yearly for treatment there and the physicians attached to it were supposed to get their living—in part at least—out of these fees. Mumford believed that, although faulty in execution, this plan marked out in essentials the right way to support a hospital and to get adequate treatment for the vast number of people of moderate means who now get the worst medical and surgical treatment that a civilized community permits. He wanted to supply the needs of those who will not go to a free hospital clinic or who are refused admittance there, but who are still unable to pay the high prices which accurate diagnosis and rational treatment necessitate. He knew that the poor who visit free hospital clinics are now getting better treatment than any but the very rich. He wanted to bring good medical service within the reach of every one.

To do this he proposed that the old Emergency Hospital should be secured; that a prospectus should be issued explaining the plan of a coöperative hospital, of which he was to be the surgical head and I the medical head. Each of us was to organize a staff of physicians to do under our supervision the work of the hospital and to be paid out of the fees of subscribers who were to contribute so much a year for the right to be treated there without further charge. Dr. Mumford believed that with adequate laboratories and x-ray outfits, with a proper system of group diagnosis by a combination of men, each expert in his own field, and by furnishing to every patient the degree of sympathy, courtesy and consideration now given by the private physician and omitted in most free clinics, the hospital could be made so attractive that it would pay. Science and sympathy he believed could be combined and, by proper organization at a hospital, could be made available for every one at a low price, while yet providing good salaries for the physicians.

Some form of coöperation both with the ministers of religion and with social service workers

he also hoped to bring about at the new hospital. In short, all that we both had failed to accomplish elsewhere, we hoped here to attain. The plan was wholly his and had it succeeded the credit would have been wholly his. We got as far as a typewritten prospectus,—written by him. Then the scheme fell through for lack of funds.

I have told of this plan in detail because, though it came to nothing in Boston, it was undoubtedly a precursor in Dr. Mumford's mind of his Clifton Springs undertaking. Hopes nourished during the time when he was trying to figure out the Coöperative Hospital on Kingston street took a further lease of life when it was proposed to him to become Physician-in-Chief of the Clifton Springs Sanitarium.

That title deserves a moment's notice. Not surgeon-in-chief but physician-in-chief was the name of his office. As head of the institution, he succeeded Dr. Charles P. Emerson, an internist. This he was perfectly fit to do because of his long experience of general medical practice during his summers at Nahant. For 12 years, from 1894 to 1906, he spent nearly half of each year in general family practice, including in the earlier years, very little surgery. This broad and varied experience prepared him to be the Physician-in-Chief of an institution where surgery was by no means the central interest.

"I've agreed to take this big institution," he writes in August, 1912, "and build it up, getting together a high-grade staff and other trifles. There's a great opportunity, great interest and great promise. I shall not be cut off from Boston. I am retaining a surgical lectureship in the University and shall come each year to give a course or courses. I am feeling well and chipper." This was scarcely six months after his second serious breakdown, an attack from his life long enemy, rheumatic heart trouble, which two years later cost him his life. With the irrepressible hopefulness that had been but temporarily checked by the failure of the coöperative hospital scheme in Boston, he plunged into his last and best crusade, the attempt to make out of Clifton Sanitarium a great coöperative medical and surgical institution. Despite the splendid leadership of his predecessor, Dr. C. P. Emerson, the staff had not been thoroughly reorganized, so that Dr. Emerson's new methods had not been able to permeate and reinvigorate the old institution. It had remained a place where people went to rest and sometimes stayed to rest indefinitely. Mumford began to make of it an active institution where people could be treated and put back into the world fit to work.

Under his inspiring leadership a splendid body of young physicians and surgeons was rapidly being accumulated and the methods and standards of the place were being modernized, when a difference of policy between Dr. Mumford and the financial heads of the institution led to his resignation, very shortly before his death.

As we look back over this record of Dr. Mumford's, we might well interpret it as one devoted to lost causes. He did not see established at Harvard such a full time Professorship of Clinical Surgery as he might well have aspired to fill. He did not live to see that closer coöperation of doctor and clergyman for which in the Emmanuel movement he had hoped. In Boston and later in Clifton Springs his eagerness to organize a coöperative hospital, serving the whole public, received a check. Yet he was never and could never have become a disappointed man. He lived by faith and not by sight. He knew that the reforms he fought for must come to pass sooner or later. He bequeathed his unfinished task to us. We have taken from his hands the tools he was forced to lay down. Two, at any rate, of the three medical reforms for which he lived and died,—full time clinical professorships and a medical clinic where every one, no matter how rich or how poor, can be treated by physicians paid out of the fees thus collected,—these two reforms I believe we shall see carried out here in Boston within the next few years. That is what he most wanted,—the goal itself, not his personal share in it. He ran his distance and passed on his message to us.

We are here to commemorate James Gregory Mumford. The sincerity of that intention will be manifest when we dedicate ourselves afresh to the task for which he gave "the last full measure of devotion" when we "here highly resolve that he shall not have died in vain." To us is bequeathed the task he left unfinished, that his ideal of medical service organized by the medical profession for all the people shall be made a reality in America.

Original Articles.

THE CHANGED POSITION OF THE PROFESSION OF MEDICINE.

BY DAVID W. CHEEVER, M.D., BOSTON.

HAVING begun the study of medicine in 1854, and its practice in 1858, I can look back over sixty years of medical events; besides this, being descended from two generations of doctors, medical influences surrounded me from childhood. I therefore feel that I am qualified to survey all this period, while excusing myself from too much egotism. Two great changes in medicine will naturally occur to everyone, namely, anesthesia and asepsis. These, however, I do not feel it necessary to detail, but shall confine myself to two classes of influences, one external or arising from outward circumstances, the other originated by the doctor himself. Naturally we must consider the external

circumstances first; but before doing so, it will be useful to glance at the real condition of the medical profession in my childhood.

Active interference with disease and the use of strong remedies were in vogue. Deadly mineral poisons, such as antimony, mercury, and lead, were largely used. Emetics, now rarely used, were habitually employed, and sometimes, I think, with benefit. There was a strong feeling that unhealthy influences could be expelled from the body by purgatives. These were freely and frequently used. It was thought that the taking of blood from the body by repeated venesection reduced fever and led to the generation of a new and better blood. It was an old-fashioned habit with a good many people of adult or middle age to be bled once a year, whether sick or not, as a sanitary measure. My father bled people. I myself have sometimes bled patients by venesection, and in properly selected cases I am convinced it is a remedy of value. All sorts of spring medicine, or "spring cleansing" as I call it, were popular, and they are popular still. The other remedies mentioned have mostly fallen into disuse. It thus can be shown that the medical mind, and hence the popular mind, were very much in favor of considering disease as an entity, which could be "knocked out," so to speak, by a sharp counter-blow given by the doctor.

Under these circumstances, about the year 1850—I cannot be precise—there arose a great medical doubt. Sir John Forbes in England, Dr. Jacob Bigelow and Dr. O. W. Holmes in America, enunciated a new theory, as follows: that all diseases were self-limited, having a natural rise, progress and decline, and hence were little influenced by medicine. If this were true, it naturally followed that it was the best policy for the doctor to care for the patient by watching his symptoms rather than by using very active medication of uncertain power. From this arose what was called Expectant Treatment: to wait on Nature; to be sure to do no harm, if you could do no good.

I must be allowed to return a moment to myself. I did not seriously study medicine until I was twenty-three years old. I was fairly mature; I had had large collateral reading; I absorbed these doctrines and I wrote them up in the *North American Review* and in a Prize Essay. I entered upon the study of medicine with an intensity which proved that I had chosen the right calling. These nullifying doctrines had a very depressing effect on me. What was the use of practising an art which could promise so little? I almost felt tempted to give up my profession. Fortunately for me, I was led to continue the study and teaching of anatomy for eight years, and thus passed on to the pursuit of surgery, where I found solid ground. As time went on, like all other doctors of my time, I did practise medicine as well as surgery. Experience taught me that the doctrine of self-limited disease was

not all true, that there was something in drugs; on some I learned to rely; and I still believe they are useful.

All this personal digression is for the purpose of trying to bring before the reader the exact condition of medical practice about fifty years ago. We are now ready to consider those influences which changed medicine, arising from without. And the first of these is Homeopathy.

This novel and peculiar belief, "made in Germany," never attained its full vigor in the land of its birth; prevailed very moderately in France, but to a greater extent in England. It received, however, a prompt recognition among certain of the more educated classes in this country and attained here an exotic growth; following soon after the introduction of the speculative views of German philosophy, it seemed to some to ally itself with them and to be a new advance in reasoning. It had two dogmas: one that the strength of medicines was increased by minute division and sub-division; the other that if a drug taken in health produced certain symptoms, it would affect or cure any diseased condition which was characterized by like symptoms. Those who professed this method necessarily rejected the older methods which opposed it. Hence the physician who was old-fashioned or regular rejected this belief as an exclusive and one-sided dogma which denied all other things which he believed true; and as these new views were diametrically opposed to his own as to the *treatment* of the sick, he was consistent in refusing a consultation with the homeopathic doctor, because it could do no good. This new practice attracted many people from the better classes and proportionately diminished the *clientèle* of the regular doctor. Homeopathy for some years increased, founded schools, endowed hospitals, established medical societies, divided the public into sects of medical belief. As time wore on, it grew less distinctive, and the methods of old or regular practice supplanted it to a large extent.

Meanwhile another new belief in healing, of a semi-religious character, calling itself Christian Science, or Mental Healing, arose. Its doctrine was that the will could control organic processes either wholly or to a much greater degree than had previously been supposed. It encouraged all weakly people to try to get well by themselves; and to a certain degree its influence was salutary. But when it undertook to cope with acute or contagious disease or to seek to control the heart, the stomach, the bowels, the uterus, which were constituted by nature, and purposely so, to be beyond the influence of the will, it failed. The bacteria of diphtheria, unrestrained by Christian Science, were diffused among other members of a family; pneumonia was encouraged to will to be well, and the patient sometimes, rashly exerting himself, hastened a fatal result; the retained secundines

at childbirth destroyed the patient by a fatal flooding, when the will-power failed, as it must fail, to contract the uterus. The mixture of religious belief with these medical theories influenced and attracted very many people, and are still in our own day an obstacle to medical practice, although the brilliant advance of medicine in laboratory methods, making our profession a new science, will gradually overcome them.

The next change in the last half-century was the entrance of women into the medical profession. The new woman, emerging from the seclusion of inherited Puritanism, now demanded admission into our ranks. The regular physicians hesitated to admit her claims for two reasons: first, that her presence at medical meetings would interfere with freedom of discussion; second, that many patients of either sex would object to being examined in detail in the presence of both sexes, and that to render such a patient unconscious by anesthesia and then submit him or her to such an examination was unfair. These fears have proved to be well-founded. However, women have freely entered the medical profession; and practise, so far as I know, every form of surgery, as well as medicine and obstetrics. It must be conceded, however, that their services are largely limited to their own sex.

An important influence on the *materia medica* employed by the physician was now exerted by the enormous advance in chemistry. We can almost say that it has revolutionized the relation of the druggist to the doctor. The latter had relied on a druggist of repute to select pure drugs and to compound them under the doctor's direction by the so-called prescription. The relations of doctor and druggist were thus intimate; each relied on the other. But now new modes of manufacture and new remedies made by synthetic chemistry have taken the place of many of the old tinctures and pills. As another instance, the extraction of alkaloids, or the active principle of drugs, has furnished concentrated remedies in minute and cleanly form; these alkaloids are also indispensable in the subcutaneous administration of remedies. Being more palatable, the new medicines furnished by chemistry are more sought after by the public; thus they have contributed to enlarge the use of proprietary medicines to the detriment of the ignorant; the abuse of narcotics is thus partially to be explained. It is fair to consider, however, that the supposed purity of materials and the supposed accuracy of manufacture depend upon the reputation of the manufacturing chemist.

Finally, among external influences, the growth of hospitals has been the most potent of all in changing the practice of medicine. Half a century ago, there was but one large hospital in Boston. Through its influence, it came to pass that, since no fees were allowed to be

charged by its physicians and surgeons for the care of its inmates, whether rich or poor, some of its medical staff established a private hospital, in which they could receive remuneration for their services. I mean to say that this was a local influence. General influences, however, were abroad in all communities, which led to a demand for, and the increase of, hospitals of every grade. We might say that the hospital has become universal, much to the detriment of the medical profession pecuniarily, for there is often an abuse of charity, since others than the poor habitually seek the hospital, and deprive the doctor of his pay. This is especially the case among those who come and go daily in the out-patient departments. But in the wards also there are occasionally wealthy patients, some of whom would wish to pay, while others seek to escape any such obligation. The majority of doctors are placed somewhat at a disadvantage by the abundance of hospitals, and perhaps in comparative reputation with the physicians who hold positions in them. Today even moderate communities have their hospitals; cities many, towns or villages one. It must thus be evident that the private physician, surgeon, and even specialist have the amount of their business decreased and their earning capacity limited by hospitals. It is not necessary here to discuss whether the public are not benefited by the hospitals; I confine myself to their influence on the profession of medicine.

This completes my enumeration of the external circumstances which have influenced the profession of medicine, and we now turn to those changes which physicians have brought about themselves. Fifty years ago Specialism was almost unknown and was limited to the special senses, as the eye or ear. Gradually specialties have increased more and more, until now their divisions and subdivisions are so minute as to be bounded by a single organ. The specialist justifies his position by saying that he knows more on any single subject by confining himself to it. The family practitioner, however, urges that the specialist loses that full consideration of the general well-being of the patient which he himself acquires. It is certainly unfortunate that the doctor does not have now the whole of his patient, and that the patient does not have an individual doctor. A large family, the members of which one general practitioner formerly took care of, knowing by experience their heredity, their tendencies, their habits, now seeks the advice of four or five specialists. Apart from other considerations, expenses are thus increased; for the specialist, having fewer patients and fewer calls for his services, is justified in charging larger fees.

This leads us to say a word of what has been called Commercialism in medicine. This I understand to mean thinking more of the fee than

the patient and charging all that the patient can pay. I wish it distinctly understood that no one is more particular than myself in charging fees to patients who are able to pay, provided such fees are reasonable, and we must all agree that the very rich man or one of social prominence should be charged more for skilful service than his neighbor of limited means. But very large sums claimed as a return for professional services have, as I believe, injured the reputation of the profession. The scandal of the "split fee" I have never personally met with.

The next change created by the physicians themselves is Publicity. The reticence of the doctor was formerly proverbial. It was not deemed wise to tell the patient too much. Every medical utterance has an exaggerated importance, and an opinion too freely imparted worries and depresses the patient. So also it used to be thought that to take the public into your confidence and to communicate the "little knowledge which is a dangerous thing" was injurious; that people got false ideas and went astray; and that, on the whole, more harm than good was done. Now all this is changed. However, when public medical lectures are confined to carefully selected subjects and limited to hygienic measures, they may be useful.

Medicine has been advanced to approximate a Science by Laboratory methods. These methods have supplanted the guess-work of earlier diagnosis. They are invaluable; they have been produced gradually by patient investigation and self-sacrificing and sometimes dangerous labors; and they have come to stay. They are the first line of defence against delusion and superstition in medicine. Moreover, they have given us Preventive Medicine. In my earlier days there was but one disease which could be surely averted, and that was smallpox by the use of vaccination. Now the discovery of serum-therapy and the injection of anti-toxins control diphtheria, temporarily control typhoid, and offer great hope in the treatment of meningitis, tetanus, rabies, and some other diseases still under investigation. No greater change in the practice of medicine could be imagined.

Finally, the Trained Nurse was introduced among the sick by the doctor himself, first, in hospitals, as was natural, then in private life. She is a great help to the doctor; she relieves him of drudgery; she lessens his anxiety; she should be his executive assistant, and not aspire to be his partner. She should be modest in her *dicta*, for her opinion is constantly sought and carries weight. While in acute disease her full fees are no more than they should be, yet in cases of long illness some means will eventually be found by which the very heavy expense of her service may be diminished.

THE MENACE OF SYPHILIS TO THE CLEAN LIVING PUBLIC.

BY J. HARPER BLAISDELL, M.D., BOSTON,

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[From the Records of the Skin Department of the Boston Dispensary.]

EVERY community is divided into two classes of individuals,—those who have syphilis and those who are exposed to it. Medical science and lay interests have been focussed upon the diagnosis and successful treatment of the disease in those afflicted with it to the practically total exclusion of the now greater problem of the rights and protection of those who may be exposed to it.

Two factors enter largely into the present indifference on the part of the physician and layman alike to the relation of this disease to public health. One is the fact that syphilis has been and always will be closely identified with immoral sexual relations. The acquisition of the disease is felt to be but a just punishment for the mis-deeds of its possessor. Blinded by the venereal aspect little thought has been given to the question of how active a menace it may be as an infectious disease to the general clean living public.

The second factor making for indifference is that we are absolutely ignorant as to the prevalence of the disease with which we are fighting. An approximate number even of those having the disease in this Commonwealth is absolutely unknown. Opinions among the medical profession are at the widest variance. One extremist takes the lofty attitude that such a disease cannot be present among the high-class clientele that he may have. Otherwise broad-minded physicians frequently rule out the disease for no better reason than "I have known the family

for years." The other extremist sees the spirochete at the bottom of every puzzling case.

For several years past syphilis has been made a reportable disease by the City of New York and the figures reported by the health authorities there probably represent as accurate an estimate of the amount of the disease in a given community as any now available. During the fourteen weeks from July 4th to October 3d, 1914, 25,633 infectious and contagious diseases were reported in the City of New York with a population of a little over five and one-half millions. Syphilis stood first in the list with 6342 cases or 28%; tuberculosis second, 5525 cases or 21%; diphtheria third, 3370 cases or 13%; measles fourth, 2750 cases or 11%; scarlet fever fifth, 1064 cases or 4%. Figures like these bespeak for themselves the urgent necessity of establishing regulations for the control of those having the disease and for the protection of the community.

For the purpose of finding out how definite a menace individual cases of syphilis may be to the community, sixty cases in the early stages were selected as they happened to come to the Skin department of the Boston Dispensary and the relation of their infectiousness to their associates studied. The tabulations include sex, age, marital relation, occupation, duration of the disease in weeks, presenting symptoms, methods of living and eating, the number of persons exposed through coitus since infection, the number definitely exposed through family life or association in boarding houses, the number of co-workers exposed, and the number of known infections from the case in hand. The co-workers' exposure column includes only those that came in active contact with the infected person through toilets, drinking facilities, etc. No attempt was made to record the number of persons exposed by casual contact as for instance, —eating in the same restaurant, being waited on in a store, or consuming food products handled by the infected person. The table in full with a more detailed explanation of some of the more striking cases is as follows:

Case No.	Sex.	Age.	S. M. W. D.	Work.	Dur. in Wks.	Symptoms.	Method of Living.	Method of Eating.	Coitus.	Family or Boarders.	Co-workers.	Known Infections.
1.	M.	21	S.	None	6	Primary No. sec.	Home	Home	0	10	0	0
2.	M.	21	S.	Clerk	14	Primary Rash Mucous p.	Rooming	Restaurants 5	6	10	50	0
3.	M.	21	S.	Shoe worker	3	Primary	Home	Home	5	5	—	0
4.	M.	20	S.	Printer	4	Primary	Home	Home	5	7	—	0
5.	F.	20	S.	Clerk	2	Primary	Home	Home	0	4	100	0
6.	F.	39	M.	Home	10	Rash Mucous p. Condylom.	Home	Home	20	5	0	0
7.	F.	37	S.	None	6	Rash Mucous p.	Rooming	Boarding house	4	18	—	0
8.	F.	24	S.	Cashier	2	Primary of Lower lip	Home	Home	1	6	20	0

Case No.	Sex.	Age.	S. M. W. D.	Work.	Dur. in Wks.	Symptoms.	Method of Living.	Method of Eating.	Coitus.	Family or Boarders.	Co-workers.	Known Infections.
9.	F.	19	S.	Candy	3	Mucous p. Condylom.	Home	Home	6	9	50	2
10.	F.	19	S.	Waitress	20	Rash Mucous p. Condylom.	Rooming	Boarding house Restaurant	0	5	40	0
11.	M.	28	S.	Electrician	1	Primary	Home	Home	0	3	—	0
12.	M.	27	S.	Printer	8	Primary Rash	Home	Home	10	5	10	0
13.	M.	34	S.	Shoe	16	Rash Mucous p. Condylom.	Rooming	Boarding house	2	15	3	0
14.	M.	28	M.	Laborer	8	Primary	Rooming	Boarding house	2	5	0	0
15.	M.	26	S.	Machinist	12	Muc. patches	Rooming	Boarding house	6	5	70	0
16.	M.	30	S.	Shoe	26	Rash	Rooming	Restaurant	2	14	—	0
17.	M.	38	S.	Carpenter	10	Primary Rash Muc. patches	Rooming	Boarding Restaurant	2	18	—	0
18.	M.	31	S.	Chorus man	7	Primary Rash	Hotel	Restaurant	3	—	40	0
19.	M.	21	S.	Pool room	24	Rash Muc. patches Tongue	Boarding house	Restaurants 3-4	0	10	—	0
20.	M.	21	S.	Messenger boy	6	Primary Rash	Home	Home	0	9	15	0
21.	F.	37	W.	Candy	24	Rash Muc. patches	Home	Home	0	4	—	0
22.	M.	16	S.	Actor	12	Primary of Lip Mucous p.	Home	Home	0	2	0	0
23.	M.	20	S.	Teamster	5	Primary	Home	Home	0	5	6	0
24.	F.	19	S.	Labor	12	Rash Mucous p.	Rooming	Restaurants 3-4	0	5	—	0
25.	F.	32	M.	Labor	7	Rash Mucous p.	Rooming	Room	8	2	0	0
26.	M.	19	S.	Machinist	26	Rash Mucous p. Alopecia	Home	Home	2	4	30	0
27.	F.	24	S.	Nurse	6	Rash Mucous p.	Family	Family	0	7	—	0
28.	M.	20	S.	Clerk	3	Primary	Home	Home	0	3	4	0
29.	M.	21	S.	None	2	Primary	Home	Home	0	5	—	0
30.	F.	30	S.	Cook	9	Primary Rash Mucous p.	Family	Family	0	1	9	0
31.	F.	42	M.	Home	26	Mucous p. Rash Condylom.	Home	Home	4	4	0	1
32.	M.	49	M.	Pullman porter	10	Primary Rash Mucous p.	Home Boarding House	Home Restaurant	2	5	—	0
33.	M.	23	S.	Longshore	24	Rash Mucous p.	Rooming	Boarding house	0	8	100	0
34.	M.	18	S.	Machinist	5	Primary Rash	Rooming	Restaurants 4	2	7	12	0
35.	M.	22	S.	Cook in dairy lunch	26	Primary of Finger Rash Mucous p.	Rooming	Restaurant	0	12	—	0
36.	M.	20	S.	Dish washer in restaurant	2	Primary	Rooming	Restaurant	0	15	5	0
37.	M.	23	S.	Butcher	4	Primary	Rooming	Hotel	0	7	16	0
38.	F.	35	S.	Labor	14	Rash Mucous p.	Rooming	Restaurant	3	20	—	0
39.	M.	18	S.	Drug clerk	3	Primary	Home	Home	3	6	2	0
40.	F.	23	S.	Waitress	14	Primary Rash Mucous p.	Rooming	Restaurant	0	12	6	0

Case No.	Sex.	Age.	S. M. W. D.	Work.	Dur. in Wks.	Symptoms.	Method of Living.	Method of Eating.	Cottus.	Family or Boarders.	Co-workers.	Known Infections.
41.	M.	23	S.	Mechanic	14	Primary Rash	Rooming	Restaurant	0	6	4	0
42.	F.	21	S.	Clerk	12	Primary Rash	Home	Home	0	5	20	0
43.	M.	24	S.	Clerk	6	Primary	Home	Home	0	3	—	0
44.	M.	27	M.	Fruit hawker	15	Rash Mucous p.	Home	Home	1	2	—	1
45.	M.	24	S.	Elevator	6	Primary	Home	Home	8	4	—	0
46.	M.	25	S.	Iron worker	7	Primary	Rooming	Restaurant	4	25	—	0
47.	F.	25	M.	Wife of No. 44	12	Rash Mucous p.	Home	Home	1	2	0	0
48.	M.	23	S.	Mechanic	8	Primary	Rooming	Boarding	2	6	30	0
49.	M.	30	S.	Cook	8	Rash Mucous p.	Rooming	Restaurant 5-6	2	7	?	0
50.	M.	48	S.	Teamster	16	Primary Rash Mucous p.	Rooming	Restaurant	4	16	7	0
51.	M.	24	S.	Waiter	9	Primary Rash Mucous p.	Rooming	Restaurant 3	0	8	—	0
52.	M.	25	S.	State work	3	Primary	Home	Home	2	6	—	0
53.	M.	26	S.	Actor	4	Primary Mucous p.	Rooming	Restaurant 2	2	2	0	0
54.	F.	24	S.	Saleslady	?	Wass. +++	Rooming with No. 53	Restaurant 2	2	2	?	1
55.	M.	22	S.	Painter	3	Primary	Home	Home	0	6	—	0
56.	M.	32	S.	Metal worker	8	Primary Rash Mucous p.	Rooming	Restaurant 2	2	10	—	0
57.	F.	17	S.	None	10	Rash Mucous p. Condylomata.	Home	Home	3	3	—	0
58.	M.	26	S.	Tattooist	1	Primary	Rooming	Restaurant	0	3	0	0
59.	M.	29	M.	Teamster	6	Primary Rash Mucous p. Condylomata.	Home	Home	2	4	2	0
60.	F. 28	S.		Boarding house keeper	4	Primary of tonsil Rash	Boarding	Boarding	1	25	0	0

CASE 6. Married woman. Husband away for six months at a time. Five children from ages of six to twenty at home. Earned extra money by immoral life in flat up-stairs kept by a professional.

CASE 7. Poverty stricken woman of subnormal intelligence living on charity and occasional immoral earnings.

CASE 8. Girl of good family with primary of lip of unknown origin. Was having occasional intercourse with fiancé who neither had nor contracted syphilis.

CASE 9. Typical "tough" girl working in a candy factory who is in the habit of having promiscuous intercourse with her male friends. Two of them not recorded in this series, were infected.

CASE 10. Waitress in a well known restaurant with very active and infectious syphilis.

CASE 14. Italian laborer, sleeping with another man, who planned to return to his wife and two children in Italy within two months. I know of two other similar cases not recorded in this series.

CASE 21. Woman with active mouth lesions of syphilis, who worked in a candy factory. Had two small children, a husband and a lover.

CASE 22. Actor in a musical comedy show with a primary of the lip and mucous patches who was in the habit of kissing many of the chorus girls frequently.

CASE 27. High class nurse in a doctor's family. Had active secondaries before the trouble was discovered. Had complete charge of two small children and was treated as one of the family, eating at the same table, using the bath-room, etc.

CASE 31. Woman with very active syphilis and several "friends," who infected her two-year old baby with a primary of the forehead, presumably from kissing.

CASE 35. Cook in a dairy lunch place with a primary of the finger and extremely active secondary lesions of many weeks' duration. This man handled all the food, drinking glasses, dishes, etc., of a great many people daily. His infection prob-

ably came from some dish or glass used by a syphilitic. This case was so extreme as to necessitate its being sent to the State Hospital.

CASE 38. Young woman with active mouth lesions eating in the dining room of a local Y. W. C. A.

CASE 39. Drug clerk with active lesions who served many sodas daily.

CASE 44. Fruit pedlar who had relations with many girls to within one week of marriage. Wife showed active lesions of syphilis and was pregnant.

CASE 45. Elevator boy with large ulcerative primary of penis. Had had relations with as many as eight girls since date of infection and used toilet in common with about 300 people in the office building.

CASE 58. Professional tattooist following fairs. Denied using saliva in moistening pigments altho knew of its being done.

CASE 59. Teamster with primary and all the secondary manifestations living at home with his wife and two small children. He could not be prevailed upon to bring them in for examination and the case was soon lost sight of.

CASE 60. Woman lodging-house keeper with a primary of the tonsil. One of the servants in the house had syphilis, according to the boarders. Woman had a fiancé with whom she had been in the habit of having occasional intercourse during the past year. The fiancé denied all syphilis and married the woman two weeks after the diagnosis was made, as they had originally planned before the primary appeared. The case dropped from the clinic and the source of the syphilis was never determined.

These sixty cases definitely exposed through coitus from the time of their infection to their first appearance in the clinic for treatment one hundred and thirty-four (134) people. Four hundred and forty-two (442) others were coming in contact with them in the intimacies of family or boarding-house life. Six hundred and fifty-one (651) fellow workers had been brought in contact with them sufficiently to run a definite danger of contracting the disease.

Of these sixty cases 41 were men and 19 were women. There were four extra-genital and presumably "innocent" primaries, the number being evenly divided between the sexes. One wife contracted the disease from her husband and five girls were infected by their fiancés. Thirty-nine of the men and eleven of the women acquired the disease in distinctly immoral ways.

The ages of the patients show how closely the disease is associated with young adults. The youngest patient was 16, the oldest 48. Eight men and five women contracted the disease under 20 years, seventeen men and six women between 20 and 25, ten men and two women between 25 and 30, and six men and six women after their thirtieth year.

The course of every infectious disease may

be diagrammatically represented by three links of a chain. The patient at hand corresponds to the middle links, with the source of his infection being the first link, and those to whom he passes the disease being the third. The stamping out of the disease depends as much upon the prompt discovery and control of his source and the prevention of his possible exposure of others as upon the proper medical care of the patient himself. Generally speaking, either in hospital or private practice, little effort is being made along this line. This series strikingly shows the extent of the present neglect and how vast a field of preventive medicine is still untouched.

These sixty cases of fresh untreated syphilis are the direct result of sixty other definitely active foci of infection in the community. Out of these sixty foci only two were brought under medical care and control. Of the 576 people exposed through coitus or family life five were known to have been infected,—four through intercourse and one by being kissed by the mother. Of the 571 equally possible infections nothing is known.

The danger of syphilis to the community as well as to the individual is increased in proportion to the inadequacy of the treatment received by those suffering from the disease. For the purpose of finding out how great a menace syphilitic patients are to themselves and their fellow-beings through neglected treatment a careful statistical investigation of this portion of the clinic was made in order to find out how effectively patients follow their doctors' advice.

Every visit of every new syphilitic patient entering during the twelve months beginning July 1, 1913, has been tabulated from the date of entrance to September 1, 1914. The amount of time which the patients might have been under treatment varies from fourteen months for those who entered in July, 1913, to three months for those coming to the clinic last June. The table showing the number of visits that the patients of the various months of entrance made is as follows:

No. Visits.	July-Dec. Total.	Per Cent.	Jan.-July Total.	Per Cent.	Grand Total.	Grand Total. Per Cent.
1	68	.272	58	.288	126	.280
2	38	.152	33	.164	71	.158
3	31	.124	28	.136	59	.130
4	32	.128	21	.119	56	.121
5	18	.072	18	.090	36	.080
6	12	.048	10	.049	22	.048
7	10	.040	11	.070	21	.051
8	8	.032	8	.039	16	.036
9-15	25	.132	8	.045	33	.090
16-23	8		0		8	
Total	250	1.000	201	1.000	451	1.000

The 451 new syphilitic cases of the year were divided into 164 primaries and very early cases, 136 secondary cases, 107 late syphilitics and 44 congenitals. From the preceding

table it will be seen that 126 of the 451 patients, or 28%, came only once to the clinic. Seventy per cent. of the patients made less than five visits,—a number insufficient in most cases to relieve even the presenting symptoms for which they entered,—and 9% only came more than eight times. The two half-years represent two different medical services, and it will be noticed that the differences in the patients paying one, two, three, four, and five visits are negligible. The more recent service naturally has fewer patients paying a large number of visits.

The attendance of the 451 patients has been analyzed from another stand-point to show the difference between the visits required for relatively good treatment and the number that they actually made. An average of one visit every three weeks from the time of entrance to September 1st has been arbitrarily selected as a minimum measure of efficient treatment. Thus 31 patients coming to the clinic during May theoretically ought to have made an average of six visits apiece during the four months to September 1st, or 186 visits for that group. The table in detail is as follows:

Month	No. of Patients.	Required Visits.	Actual Visits.	Percentage.
July	45	945	234	.247
August	55	1100	220	.200
September	32	576	160	.278
October	42	714	176	.246
November	36	540	153	.283
December	40	560	141	.252
Total	250	4435	1084	.244
January	33	396	107	.308
February	28	308	87	.282
March	36	324	127	.392
April	31	248	130	.524
May	31	186	115	.618
June	42	210	145	.690
Total	201	1672	711	.425
Grand total 451		6107	1795	.294

During the months from July, 1913, to December, 1913, inclusive, 250 new cases of syphilis visited the clinic. On the bases referred to 4435 visits ought to have been made by these patients. Actually 1084 were made or 24.4% of the required number. This percentage remained fairly constant throughout the period, the variations among the six months being only between 20% and 28%.

During the six months beginning January, 1914, and closing June 30 there were 201 new cases of syphilis who up to the close of September should have paid on the basis assumed 1672 visits. Actually 711 visits were paid or 42½%. The percentages show interesting increases during the more recent months as follows: January, 30.8%; February, 28.2%; March, 39.2%; April, 52.4%; May, 61.8%; June, 69.0%.

Summarizing the two half years it was found that during the twelve months beginning July

1st, 1913, the 451 cases should have paid 6107 visits to the clinic up to the close of August. Actually 1795 visits were paid or 29.4% of the needed number.

The explanation of the increasingly better attendance during the recent months is a simple one. During the first three months after beginning treatment a considerable portion of the patients come regularly, one-half or more paying the number of visits needed during this period. After the first three months, when symptoms may be relieved but cure cannot have been effected, patients return much less regularly. After the first few months the clinic averages only 25% of the visits required for minimum efficient treatment.

SUMMARY.

1. The amount of syphilis in Massachusetts today is absolutely unknown. Figures from communities where the disease is reportable show it to be one of the two most prevalent infectious diseases with which we are fighting.

2. Every syphilitic case definitely exposes many innocent, clean living people to the disease. Sixty cases of fresh syphilis exposed 134 by coitus, 442 by family or boarding-house life, and 651 by occupational association,—1227 people in all.

3. At present no organized effort is being made to round up the source of every case. Out of the sixty sources of this series only two were brought under medical care. These sixty cases infected at least five others, but no effort was made to trace out infections in over five hundred equally good possibilities.

4. Left to themselves, patients make little effort to follow up even the most elementary treatment.

5. Twenty-eight per cent. of the patients entering the clinic with active symptoms of syphilis never return for treatment.

6. Seventy per cent. made less than five visits,—a number insufficient in most cases to relieve the presenting symptoms for which they entered.

7. After the first few months the syphilitic patients as a whole average only 25% of the visits required for minimum efficient treatment.

AN UNDESCRIBED ULNAR NERVE TROUBLE, DUE TO TENSION FROM SCAR, AND ITS CURE.

By F. J. COTTON, A.M., M.D., F.A.C.S., BOSTON.

FROM observations of the last three years, I have come to regard as a separate class (apparently unrecognized hitherto) lesions of the ulnar nerve at the elbow, due to the intermittent tension produced by elbow motion on a nerve

held rigidly fixed by deep scar. Compression lesions of nerves, associated with fractures, we all recognize,* but this is a different story. Not all these cases have had any fracture at all, and none of them any compression of the nerve, even by scar, so far as could be determined.

The mechanism is purely *fixation of the nerve* by scar tissue, at the turn of the elbow, where it lies in the epitrochlear groove, or in the inch next below this point. Given a nerve so fixed, it must necessarily happen that flexion of the elbow must pull upon it, and ordinary use of the arm must give *intermittent traction* on the nerve trunk. The result may be (see cases to follow) in some measure a paresis in the muscles supplied by the nerve, sometimes with marked atrophy in the muscles of the hand, but more particularly, the damage expresses itself in pain; pain radiating from the elbow down to the last two fingers, with numbness to touch in this region; a numbness not usually serious in itself, but important as an indication of real trouble.

Pain and a partial paresis of the intrinsic muscles of the hand, expressed in weakness and clumsiness in executing the finer movements of the fingers, are the factors which principally form the list of complaints from the patient. Relief of this condition is surgical. Just as in the cases of intermittent nerve-pressure symptoms from recurrent luxation of the nerve at the elbow,¹—so here also, the only remedy is removal of the nerve to a more favorable site; we can relieve symptoms by dissecting out the nerve, carrying it forward and imbedding it in loose fat and muscle.

The case histories tell the story fairly well, though the records leave something to be desired.

CASE 1. W. H.; seen Oct. 30, 1912 for Dr. J. B. Murphy of Taunton, Mass. He had an olecranon fracture which is said to have united in the extended position with stiffening of the elbow. The elbow is then said to have been broken up under an anesthetic, and put up at a right angle. When I saw him first, the elbow was rigid at 135 degrees, and very sensitive. There was much muscle atrophy, both above and below the elbow, and considerable stiffness of wrist and finger motion. There had been no recent improvement. I therefore proceeded, Nov. 4, 1912, to mobilize the joint under anesthesia. After this he had the usual treatment by exercises and massage, and did more than usually well, so far as regaining of elbow motion went. By the following spring, he had, by persistent effort aided by massage, regained motion in flexion to about ten degrees beyond a right angle, and something near fifty degrees of extension, with free rotation and free wrist motion, and with only a little stiffness of the fingers. When I next saw him, a little less than a year after his first visit, the condition had changed notably. Motion and strength were improving slowly, but he again had severe pain, no longer general about the

* Such lesions for instance are described in connection with epitrochlear fracture and displacement of the fragment into the joint, giving nerve compression by tension on the intact periosteal attachments. Cotton, "Dislocation and Joint Fractures." Saunders, 1910, p. 218.

¹ Cotton: BOSTON MED. AND SURG. JOUR., Vol. cxliii, p. 111.

joint, but localized to the inner side and radiating down to the last two fingers, increased by use of the arm, intermittent and pretty severe. There was thickening all about the elbow, as there always had been. On examination, there was thickening in the epitrochlear groove; well marked, though reference to the x-rays, previously taken, showed no epitrochlear damage. Closer study of the elbow showed the nerve easily palpable just above the groove, apparently slightly thickened and abnormally sensitive. There was hyperesthesia of the skin area supplied by the ulnar; there was decided loss of power in the hand muscles supplied by the ulnar; movements of the fingers were clumsy; there was some wasting of the intrinsic muscles of the hand. It required little ingenuity to reconstruct the story. The ulnar nerve, imbedded in the scar tissue that was all about the joint, was constantly pulled on in the persistent exercises used to limber the joint. The scar tissue had not compressed it at all, but had *fixed* it. Protected while the arm was stiff, the bound-down nerve was injured by the *return of joint motion*. I advised operation, but the patient postponed it, in view of pending litigation, and later, depressed over the loss of his suit, declined intervention. He had, however, carried out the lighter régime I had prescribed pending operation, and when I last saw him in March, 1914, the condition was improved as to all nerve symptoms, though by no means normal.

CASE 2. A young boy, seen in consultation. Elbow injury of some months' duration; no fracture. Pain on use of the arm, felt at the elbow, running down to the fourth and fifth fingers; partial loss of power; some atrophy; some filling-up of the epitrochlear groove. Diagnosis made of condition similar to that in Case 1. When operated upon, no nerve compression was found. The nerve was, however, surrounded and held by scar tissue. The surgeon operating considered the exploration negative and did nothing more. Result unknown to me.

CASE 3. I. B.; seen July 31, 1913. Girl of 13; referred to me by Dr. J. H. Sweet, Jr., of Taunton. History of a blow on the right elbow two or three years ago. Lameness of the elbow for a time; then it grew better, but not long after this it grew bad again and from time to time has given much pain and trouble. She has struck the elbow two or three times since then. The elbow shows no sign of previous fracture or luxation. There is, however, distinct thickening in the epitrochlear groove, and the nerve just above this point is sensitive. Pressure on the nerve gives tingling pain down the arm, and sharp flexion of the elbow gives like pain. There is decided clumsiness in motions of the hand, and moderate atrophy of the intrinsic muscles of the hand; there is definite and considerable hyperesthesia over the ulnar area; there is an abnormal smooth look to the hand, and a definite beginning of the "*main en griffe*" attitude. There have been ulcerations about the nails of the last two fingers, obviously "trophic." Operation advised and carried out Aug. 9, 1913. Incision on the inner side of the elbow down onto the ulnar nerve showed it a bit thick above the joint. At a level just above the epicondyle, it disappeared downward into a mass of fairly dense fibrous tissue, to which it was everywhere adherent, though nowhere compressed. The nerve had to be dissected out for over an inch of its length. Below this point, it was free and normal.

The nerve was lifted from its bed, carried well forward of the condyle, and laid in a groove of fat and superficial fascia, which was lightly stitched about it. The wound was then sewed and the arm put up at right angles. The next day sensation had become approximately normal, and the fingers were better handled and felt more normal to her. Improvement within three days was startlingly rapid. She went home then, but reported in nine days with an arm and hand normal, except for incomplete repair of muscle atrophy. At forty days she wrote of the arm as normal, except for some tremor of the hand after writing. Three weeks later she fell down stairs, and had some return of pain at the elbow but no motor disturbance. Since then I had no news of her until Dec. 23, 1914, when she wrote in response to my letter of inquiry to the effect that the hand was normal, save for some "hurt" after "using it hard or long." She is in school, writing with this hand. She writes that there have been two "sores," since I saw her, so evidently the operation, while very serviceable, was not an absolute cure.

CASE 4. E. McC., aged 12 years. Came to me, referred by Dr. Charles H. Hare, Jan. 28, 1914. She had broken her right elbow early in September, 1913, in a distant town. The fracture was reduced; put up in splints, then in plaster, to Oct. 12, 1913; later subjected to passive motion of the usual sort, once under an anesthetic. The patient was a tall, slight, but vigorous girl, who showed nothing of interest save the right arm, which was carried, helpless, at her side. The hand was shiny-skinned and smooth; the fingers were held in the *main-en-griffe* attitude. The muscles of the hand innervated by the ulnar nerve were all wasted, and their action weak and uncertain. There was very definite though incomplete sensory loss in the region of the ulnar supply. There was much radiating pain in the ulnar supply, increased by attempted use of the hand. Besides this, however, there was distinct loss of power and a trace of dulling of sensation in all the muscles and the skin surface belonging to median and radial nerves below the elbow. Obviously we were dealing in part with the results of a compression-lesion, due to fracture or reduction, or more likely, to splint-compression. There was, however, distinct thickening about the ulnar nerve in the groove under the epitrochlea. Evidently the fracture had been supracondylar; position and motion at the elbow were excellent. I sent her to Dr. J. W. Courtney for a neurological opinion, and he found the ulnar nerve most affected, and advised operation on the chance.

Jan. 30, 1914, I operated. Again the nerve lay in a mass of scar; again it was dissected out, swung forward, and imbedded in a roll of fat, and stitched in place. Within three days, improvement was marked. The hand was warmer; the fingers more responsive; the pains less. Improvement was steady, and as the ulnar nerve supply returned to normal, so also did the muscles of the median and musculospiral groups, though these nerves were not touched. June 16, 1914, she was discharged apparently well in every way, as to freedom from pain, and as to muscle function and sensation.

CASE 5. J. W. B.; referred to me by Dr. G. P. Laton of Salem, N. H. Seen July 14, 1914; age, 55; height, 5 feet, 10½ inches; weight, 195 pounds; occupation, carpenter. History of injury was, that in car derailment April 12, 1914, he was thrown fifteen

feet or so, landing on the right side, shoulder, and elbow. He shows a typical picture of subdeltoid bursal adhesions, but also the picture of ulnar nerve involvement; a little dulling of sensation in the last two fingers; muscle action within the ulnar supply very defective; considerable atrophy of muscle in the thenar and hypothenar eminences and in the substance of the palm. There was definite thickening below the epitrochlea; a thickening into which the large but not abnormally thickened or sensitive ulnar nerve disappears. He was treated with baking and massage for three months, without improvement. The notes of the operation are as follows:

Operation Oct. 22, 1914, Scobey Hospital. Incision in right arm, over epitrochlea, and about four inches above and below; ulnar nerve dissected out of its bed. From about half an inch above the epitrochlea, it is normal in appearance and in surroundings; below this point, the nerve is surrounded by a good deal of rather dense scar tissue, making a very definite sheath, out of which the nerve could be lifted only after dissection of adhesions. As usual there was no compression of the nerve at any point, the nerve trunk appearing rather thicker and perhaps a trifle pinker than normal. Nerve carried, after this dissection, clear of the epicondyle in front, and stitched down in a bed of fat, fascia and muscle, coming back to its normal course in a mass of fat above, in the mass of pronator muscle below. Right shoulder manipulated with the breaking of two distinct adhesions, one of which gave way in abduction, and the other in internal rotation. Arm then showed full normal motion; put up in plaster in abduction and in more than the usual outward rotation. Much pain on recovery, in shoulder only.

Dec. 15, 1914. Hand looks entirely normal; use normal. The only thing left in regard to the ulnar nerve is a slight sensitiveness where the nerve crosses the elbow, in its new position, when he tries to use a screw driver hard, and a trace left of the atrophy of the ulnar side of the forearm; a hardly perceptible trace. Muscles of the hand have already regained almost their normal bulk. The shoulder shows slight improvement; less painful, and range of motion is increased a little. I do not think the present condition warrants the advisability of further interference. He is to go ahead with exercises, as usual, but not very strenuously, and is to report about the first of the year.

Jan. 5, 1915. Hand entirely normal, except for a trace of the atrophy of the muscle in the hand; use of it entirely normal. Shoulder progressing in usefulness, but a bit slowly.

CASE 6. F. E. A., seen Oct. 2, 1914, for the Industrial Accident Board. He is a painter and decorator; age 57 years. Medical history of no interest up to an accident sustained Aug. 30, 1913, when he fell with a staging about ten feet, striking his left arm as he fell. He was under hospital treatment for ten days. For over a year, no treatment save massage and liniments, and with no substantial improvement. He complains of loss of power in the hand and of numbness. The left elbow showed slight limitation of extension; marked thickening about the inner side of the elbow. Atrophy of muscles in the ulnar supply not extreme, but they show partial loss of power and there is a very definite clumsiness in executing the finer motions of the hand. There is definite partial anesthesia of the third and fourth fingers. In this case, the thicken-

ing at the elbow was so marked that a diagnosis of epitrochlear fracture could be made definitely.

He was later sent to me by Mr. H. Edsall of the General Accident Co., with a view to repairing damage, and on Oct. 24, 1914, I operated at the Scobey Hospital. Incision showed the ulnar nerve embedded below the elbow in a tough fibrous mass, so hard that it "whistled" when cut. This extended for a little distance above and for about three-fourths of an inch below the epitrochlea. The nerve was solidly adherent all through this region, but when dissected out, was not itself in any way abnormal. The nerve in this region and for three inches above the elbow, though normal, was a large ulnar nerve. Dissection carried down into the flexor muscle mass. After the nerve had been cut out of the groove at the back of the condyle, investigation showed the fragment felt at examination to lie directly below the epicondyle, and between it and the place where the nerve lay was only fibrous tissue; a piece of the bone, one-half to five-eighths of an inch, was removed without opening the joint. The nerve was transplanted forward into a very satisfactory bed of fat, covering it on both sides. Arm put up at right angles in sling.

Nov. 4, 1914. Still shows a trace of the muscle atrophy previously present, but muscle power everywhere is good; can spread his fingers perfectly well, etc. The partial anesthesia of which he complained has entirely disappeared; feeling the same in these two fingers as in the others; as he expresses it "life has come back into the hand." Now shows nothing excepting the scar, and the slight thickening in the bend of the elbow, where the fact was rolled up to make a bed for the nerve.

When last seen, Nov. 23, 1914, he showed a hand in all respects normal save for a trace of the muscle atrophy. Sensation was perfect and the coördination of the finer movements of the hand entirely restored.

CASE 7. J. S., teamster, aged 46 years; seen Nov. 20, 1914, for Mr. H. Edsall. He says that on the day after Thanksgiving, 1913, he was sitting on his team, when the horses started suddenly. He lost his balance and fell on his right elbow. Went to the City Hospital, and was treated with the arm in a sling in a flexed position for three months, according to him. An x-ray was taken. Later, was treated at Tewksbury, and here also an x-ray was taken. He proved to be a vigorous sort of a man, looking less than his age. The right elbow showed limitation of about 25 degrees in extension; a little less in flexion and rotation. The limitation was purely a loss of mobility, not painful. (Later examination of the early x-rays at the Boston City Hospital showed nothing but a moderate articular thickening of the sort one finds in laboring men of middle age.) More interesting was the loss of power in the muscles of the hand, and the trace of anesthesia in the region supplied by the ulnar nerve. There was also some stiffening of the fingers, due in my opinion, partly, like the elbow stiffness, to overlong fixation; partly to defective power in the muscles that should have been limbering up the fingers during the past year. The hand muscles were a good deal wasted. The condition had been stationary for some months at least. Below and behind the elbow, in this case as in the others, was a very definite thickening into which the nerve disappeared downward. I advised operation and operated Dec. 16, 1914. Incision just behind epicondyle, five inches long. Ulnar nerve found firmly bound to a point above the epicondyle;

very firmly adherent in dense scar mass which was in this instance not very thick but rigid and tough. Same operation done as in the other cases, imbedding the nerve in fat, in this instance for the entire length of its new course. Nerve in this case could not be carried quite as far forward as the others, but well clear of the condyle. The motion of the elbow was no freer under ether, and attempts at stretching it met with definite fibrous resistance, not to be overcome. Usual dressing.

In this case also there was within three days a subjective improvement and within a week the anesthesia was all gone and the fingers could be handled better.

Jan. 5, 1915, examination showed definite improvement in regard to the atrophy of muscles; firmer grasp; good, practically perfect, coördination in the finer movements of the hand; and most encouraging of all, real improvement in the range of flexion of the fingers. The condition at the elbow, as regards motion, does not show any change.

Jan. 19, 1915. No pain; very definite improvement in motion of fingers and in wrist motion. Fingers handled much better.

Despite minor differences, these cases clearly belong in a class by themselves,—a class not apparently recognized in the previous literature. The conditions found at operation, together with the surprisingly abrupt relief of anesthesia (and of pain, in case it had been present previously) and the very rapid improvement in motor function, with prompt rebuilding of atrophic muscle, all lead me to class these as lesions due to the constant irritation of the fixed nerve by flexion and extension movements, rather than as compression lesions.

Perhaps my having seen so many of these curious cases in a short period may be only a chance, but I cannot help suspecting that this lesion may often have been unnoticed as well as undescribed. The resultant disability is not inconsiderable, and it behooves us to keep an eye open for these cases—if for no other reason, because they are so easily cured, and so quickly.

SOME NERVOUS AFFECTIONS IN WHICH MASSAGE DESERVES MORE FREQUENT USE.*

BY J. W. COURTNEY, M.D., BOSTON.

THAT massage is an important therapeutic factor has long since been an established fact. Whether or not it holds a position as prominent as it deserves in the therapy of nervous disorders is debatable. The question is one which I shall, in this brief communication, not attempt to settle. I shall content myself with pointing out to you certain nervous disorders in which massage in some form might with benefit be more frequently employed.

In the rather large group of myospasms there

* Paper read before the Massachusetts Therapeutic Massage Association, January 12, 1915.

are two varieties peculiarly rebellious to drug treatment. One of these you probably know under the name of wry-neck, the other as writer's cramp—a disorder by no means confined to penmen, but found also among typists and among artisans whose occupations demand an incessant abuse of the coördinated movement of the smaller muscles of fingers and hands.

In the wry-neck variety of myospasm I am thoroughly satisfied that, in most cases, the seat of the trouble is to be found in the cortex of the brain. I hold this belief for two reasons: first, because of the absolute inefficacy of local surgery as a curative measure; and second, because of the relief sometimes obtained in the spasmodic cases through the effect produced upon the mind by a supposed operation. In two cases of very long standing which came under my observation a few years ago, Dr. Bottomley, at my suggestion, excised fairly large pieces of the nerves supplying the muscles involved in the spasm. The operation was painstaking and thorough in both cases. In neither case was any permanent benefit derived.

Sedative and anti-spasmodic drugs are likewise of little value in these cases, so that both surgery and drugs offer but slight hope of relief to the unfortunate sufferer whose plight is almost inexpressible. Massage, systematic and persistent, resistive motion and muscle stretching, on the other hand, are of genuine and lasting value in the condition in question. Their effects are not immediate—indeed, it is not to be expected that they should be; but the ultimate relief from them is far more tangible and permanent than that obtained in any other way. Another distinct advantage possessed by the manipulative method in these cases is to be found on the psychic side. The patient feels that something definite and tangible is being done for him, and his courage to make the fight for recovery is sustained thereby. Those of you who have had occasion to treat cases of spasmodic wry-neck will at once recognize the importance of this aspect of the treatment. Without the encouragement thus derived, the patient is very apt to develop a melancholy which leads to the taking of dangerous drugs or to actual suicide.

In writer's cramp and other vocational myospasms, the curative value of massage and gymnastic exercise is overlooked with regrettable frequency by members of the medical profession. In such cases we are dealing, as I have already said, with an abuse of function of certain finely coördinated groups of muscles, with the result that when the endeavor is made to bring the abused muscles into function, the overwrought nerves which control the desired coördinated muscular activity lose their controlling power; and the end result is spasm of the muscles called upon, pain and other evidence of disordered sensibility.

No cure is to be expected in such cases so long as the occupation which brings about the

spasm and accompanying discomfort is persisted in. But treatment by local rest and tonics seldom, in itself, suffices to bring about a cure. What is needed above all things is massage, usually in the form of deep manipulation. This, however, should be applied to the muscles which are the antagonists of those in spasm rather than to the spasmodic group itself. The rationale of this treatment is to be found in the increase in vigor and resisting power which, by the treatment, is imparted to the resisting muscles.

The next class of cases in which I have finally come to the belief that massage will prove its efficiency, if it is given a fair trial, is that of so-called cerebral *contusion*. Cerebral contusion of the modern medical nomenclature is identical with what, in former times, was commonly called "concussion of the brain." The old notion was that when a blow of moderate severity was inflicted upon the skull, its contents were shaken up like so many dried peas in a pod, and that the symptoms produced were due to a temporary disarrangement of the nervous elements of which the brain is composed. Modern pathologic research has shown conclusively that this notion is entirely erroneous. As a matter of fact, when a wounding force of moderate severity is applied to the skull, its immediate effects are primarily made manifest in the brain bloodvessels. These vessels are supplied with sympathetic nerves which afford them an independent power of contraction and dilatation. Under the shock of an applied force the sympathetic or vasomotor nerves in question are immediately put out of function, and circulation within the brain ceases to a greater or lesser extent. With this cessation in vascular function two things immediately happen—first, a clotting of the blood in certain capillaries; and second, a leakage through the vessel walls of the watery contents of the blood. If only a small area of the brain is involved in this morbid process, the circulation finally rights itself and the watery effusion is absorbed. If, on the other hand, the brain area involved is extensive and the amount of fluid poured out into the brain substance great, the burden of absorption and removal of this fluid thrown upon the great venous pathways from the brain is so overwhelming that these conduits fail in their function, the brain becomes waterlogged and death ensues.

Up to the present time the measures adopted by the surgeon in the above-mentioned situation have been inadequate to cope with the effused death-dealing fluid with entire success, and, as I have already said, I cannot help feeling that in massage we have an important adjunct to the surgeon's endeavors. A stroking or *effleurage* of the neck tends, as you very well know, to a rapid depletion of the jugular veins and creates a sort of suction. This suction would, in my opinion, strongly favor the evacuation of effused fluid from the brain itself and to a remarkable degree the drainage established by the trephining operation of the surgeon. It is my hope

that in the future the masseur may have increasing opportunities to prove the worth of his manipulations in this class of cases.

Owing to the fact that most organic diseases of the brain and spinal cord are incurable, the physicians in charge of cases representing these diseases are too frequently wont to limit their therapeutic endeavors to the administration of either iodide of potash or of that other standby of neurologic therapy—strychnine. More often than not, under these circumstances, the iodide is useless and the strychnine positively harmful in that, by its stimulating action, it serves to increase the painful muscular contractures accompanying the disease under treatment.

In the majority of cases where the lateral columns of the spinal cord are involved, massage and passive motion are the only therapeutic agents really indicated. It matters little whether the primary focus of disease is in the brain or in the cord itself; the resultant damage is weakness and stiffness—sometimes amounting to actual contracture—of the affected limbs. And to these disabilities a local sluggishness of circulation is not infrequently added by reason of a concomitant disturbance of what we may term the check-rein nerves of the skin blood vessels—the vasomotors.

The value of massage in such conditions is twofold: It acts centripetally, stimulating the tissues about the central focus of the disease and peripherally, it improves circulation, retards muscular wasting with its consequent weakness, and prevents severe deformities.

There are many who scoff at any measure designed to combat the ravages of organic disease of unknown or doubtful origin in the central nervous system, but after fairly long experience with this form of disease I can frankly say that I do not share their pessimism. I have just spoken of the value of massage in lateral column disorders and will now speak in turn of what may be expected from it in affections of those remaining portions of the cord which are of the greatest and best known functional importance,—the anterior gray horns and the posterior columns.

In that disease of the anterior horns, known as progressive muscular atrophy, I cannot truthfully say that I have found massage of any particular value, but in what we may term the late regressive stages of infantile paralysis—a disease of this same region—there is no question of its efficacy. In fact, I consider it of as great importance in the maintenance of muscular nutrition and the correction of paralytic deformities as any other measure that has ever been adopted. To obtain the best results from it, however, its use must be extended over a long period of time.

Locomotor ataxia represents the most commonly encountered disease of the last-remaining portion of the spinal cord above mentioned, and in it massage—either alone or in combination with reëducation in coördinative movements of affected muscles—serves a useful purpose. Here

again its action is twofold, as in the case of lateral column degeneration, in the sense that its beneficial effects are felt both peripherally and centrally, although it does not have identical conditions to combat.

In Parkinson's disease (*paralysis agitans*) I have found massage very useful in allaying the feeling of tension, stiffness and awkwardness that so often accompanies the shaking. Here, however, only the gentlest kneading and the mildest sort of passive motion should be applied.

I am sorry that I have not had the time to specifically indicate the other forms of organic disease of the central nervous system in which the employment of the therapeutic agent in question is attended with undoubted benefit. I will say, however, that it should be more frequently used in all cases of central disease accompanied by deformities of joints and in the majority of those associated with atrophy. In the latter group I make exception of syringomyelia as well as of the so-called progressive muscular atrophy, in which diseases I have found it of doubtful value only.

It is hardly relevant in this paper to speak of the use of massage in cases of peripheral nerve suture because its employment in such cases is the rule rather than the exception. But I cannot refrain from touching upon this subject in order to emphasize one very practical point, namely, the absolute necessity for patient perseverance. Even where early end-to-end suture of a divided nerve-trunk is made, the process of union is, as a rule, tediously slow and inexpressibly discouraging. Months may elapse before massage appears to make any satisfactory impression upon the muscles that have been rendered wasted and inert by the severance of their nutrient nerve. But persistent massage acting centripetally will ultimately bring about most gratifying results in the way of improved nutrition and motion in the affected muscles. In cases where surgical union of a divided nerve is delayed for some time, the problem of the masseur is distinctly greater and he must bring into his handling of the case a fund of patience that is well-nigh inexhaustible.

With the above digression I come to a final group of morbid nervous phenomena in which the use of massage is by no means unknown, but in which it might, with great profit, be more frequently employed. I refer to phenomena which represent a state of pathologic exhaustion of the nervous centres and which are classified under our present rather unsatisfactory nomenclature as symptom-complexes of the so-called psychoneuroses.

As you perfectly well know, the patient with hysteria or neurasthenia is, with annoying frequency, looked upon by physician and layman alike as the victim of nothing more nor less than his own wilfully morbid imagination. Such a tenet on the part of a layman, ignorant as he is of all knowledge of anatomy, physiology and hygiene, is hardly to be wondered at. When

on the other hand, a physician conducts his treatment of the pitiable sufferer from exhausted nerve centres on the basis of the same tenet, the *raison d'être* of this treatment is akin to that of the exorcism of mediaeval times.

As a plain matter of fact the problem of etiology in exhausted nervous centres is far too deep and subtle to be disposed of in any offhand way. Into this problem I shall not here delve, but shall confine myself to the consideration of those clinical manifestations of the exhaustion in which the use of massage is indicated much more often than it is actually employed.

Nervous exhaustion is characterized by morbid emotional states, by a prompt fatigability of motor neurones, by perverted sensibility of the most varied form and by curious morbid fluctuations in the activities of that delicate mechanism known as the great sympathetic nervous system.

In the severe cases the feeling of fatigue is so marked and so constant that it is with the greatest difficulty that the sufferer is able to use his upper extremities for more than a few minutes at a time or to drag his weary legs for even the shortest distance. The advice often given to such a person by the misguided medical man is to take more exercise, and if this advice is followed, it invariably leads to such an increase in the exhaustion that existence is rendered almost unendurable.

What such a person really needs is the very gentle stimulation of motor neurones and voluntary muscles, which skilfully applied massage so marvelously well supplies. Under such manipulation the unhealthy tension of over-tired motor nerves is relieved, the muscles lose their vice-like feeling of tension, the skin circulation is equalized in the various regions of body and extremities and the emotional tone is altered for the time being from one of irritability, anxiety and depression to one of pleasant languor.

Under the same sort of manipulation the tender and at times extremely painful spine is restored to normal feeling. I have been particularly struck by the analgesic action of carefully graduated massage in this condition; indeed, I have frequently seen spines so exquisitely tender at the outset that the lightest *effleurage* of a gentle operator was intolerable, gradually become, under this treatment, so free from morbid sensitiveness that even the heaviest handling was grateful rather than otherwise.

We come, finally, to a consideration of the disturbances which arise through the faulty working of the great sympathetic system in states of nervous exhaustion. It has always seemed to me curious that Nature has put such a burden of function upon this, the most delicate part of the dynamo that runs the human machine. But such is the fact.

At times it governs, at other times it is governed by, our emotional life. It regulates the amount of blood that at any one time is in a particular part of the brain. It controls respiration, the beat of the heart, digestion, glandular

secretion in general, the secretion and excretion of urine, the peristaltic action of the bowels, the menstrual function and the surface circulation—in a word, it holds the sceptre over a very large territory in the human economy. Hence, when it is brought by exhaustion to a state of irritability it produces the over-activity in brain circulation which underlies insomnia, the cold, mottled and moist extremities, the suffocated feelings, the palpitations, the sluggish and painful digestion, the constipation, the increased or diminished urinary output, and the painful, delayed and scanty menstruation so often encountered in the victims of the so-called psychoneuroses.

Here is a pathologic problem with which no system of therapy that does not give a prominent place to massage can possibly hope to cope successfully. By massage, in the form of *effleurage*, we can deplete the over-filled vessels of the brain and bring about the much-needed mental peace and refreshing sleep. By the same agent we can equalize surface circulation and surface temperature throughout the body and limbs; we can stimulate sluggish peristalsis and relieve the pain caused by the distention of retained flatus; we can prevent the sagging of the stomach and intestines due to atony and, in certain cases, we can—I feel confident—bring about a return to normal of the menstrual function.

There is probably nothing in this very brief communication that was not known to each and every one of you long since; but it was not my purpose to bring to your notice those forms of nervous disorder in whose treatment massage has not as yet proved its practical efficacy; on the contrary, my aim was to stimulate a greater tendency to its employment in cases in which its therapeutic value is practically indisputable. This I have not done as thoroughly as I should like, but as thoroughly as my limited leisure permitted. I ask your indulgence for my shortcomings.

Medical Progress.

EIGHTH REPORT OF PROGRESS IN ORTHOPAEDIC SURGERY.*

By ROBERT B. OSGOOD, M.D.; ROBERT SOUTER, M.D.;
HERMANN BUCHHOLZ, M.D.; HARRY C. LOW, M.D.;
AND MURRAY S. DANFORTH, M.D., BOSTON.

(Concluded from page 452.)

RICKETS. OSTEOMALACIA. CHONDRODYSSTROPHIA
FETALIS. OSTEOGENESIS IMPERFECTA.

Weiss³⁰ reports a series of cases of rickets, some mild and some severe, in which there was a very marked improvement in their condition under the administration of tablets of the extract of the hypophysis. This improvement occurred in from six to ten weeks.

Cavazzani³¹ had observed great benefit follow

the administration of epinephrin in three cases of osteomalacia. The disease occurred in women who had borne one or more children. In the first case it was begun about a week after the first symptoms, which had come on acutely a few days after delivery. The treatment was promptly effectual. In the second case the osteomalacia had developed not long after delivery, but two months had elapsed before treatment was instituted. The treatment was not kept up regularly and the results were less striking. In the third case, although the disease had existed for a long time and there were irreparable lesions, a very marked improvement took place.

Wagner³², in reporting a case of chondrodysplasia fetalis transmitted from mother to child, calls attention to the influence of heredity and the fact that the usual transmission is from father to child. The author, while admitting that there is no conclusive evidence of specific disturbance of function of any of the glands of internal secretion, believes that there is probably a hypersecretion of the reproductive glands which causes an abnormal development of muscles and genitalia. An histological study reveals irregular columns of cartilage cells at the epiphyseal line, the cells being pushed apart, especially at the periphery, as if the periosteum had been driven into the cartilage. Wagner thinks that this abnormality of enchondral bone formation is associated with increased tension in the direction of the long axis of the bone by the hypertrophied muscles, resulting in the micro-nelia.

Bookman³³ has accepted an opportunity to study the metabolism in a case of osteogenesis imperfecta for a considerable period of time, especially with reference to the calcium retention and output. His three conclusions are as follows: 1. Calcium retention may be much below normal. 2. During the course of the disease it varies widely. 3. Cod-liver oil and phosphorus, and more especially calcium lactate increase the calcium retention. Bookman compares his observations with the earlier work of Bamberg and Huldehinsky³⁴, who after a study of their own cases and a review of the literature, conclude that osteogenesis imperfecta (Vrolik) and osteopsathyrosis idiopathica (Lobstein) present very similar clinical pictures. They believe that fifty per cent. of the cases of osteopsathyrosis, which condition comes on at varying periods after birth, are hereditary. In the earlier congenital osteogenesis imperfecta they find that heredity plays no part. A histological study shows, in contradistinction to the picture of chondrodysplasia fetalis, aplasia of the compact tissue and spongy substance of the diaphysis and epiphysis with normal growth of cartilage, resulting in the development of slender bones, with little spongy substance and weak compact tissue. They consider that disturbance of function and defective formation of the periosteum is the direct cause of these changes. Both early and late

forms show the same changes. In regard to the calcium metabolism, their work seems to show that the disease is not caused by a loss of calcium, but by the incomplete rudimentary formation of the bones with irregular distribution of calcium. They agree with Bookman that the retention of calcium can be increased by phosphorized cod liver oil. The prognosis in the forms occurring before birth is bad. Of 31 cases collected, only three survived. In the late forms it is good, in 105 cases there being no death from the disease.

SCOLIOSIS.

In a series of 22 cases of scoliosis, not selected, but taking all in which good x-rays were obtained, in the Orthopaedic Clinic of the Massachusetts General Hospital, Adams³⁵ has studied the abnormalities in the vertebral column. Two cases showed abnormalities of the dorsal vertebrae, and nineteen, abnormalities of the low lumbar or sacral segments. The only remaining case was one of scoliosis, following poliomyelitis, in which there was no bony abnormality.

[Ed. Note.—Such findings in x-rays made as a routine in a scoliosis clinic, show the need of careful study of the lumbo-sacral region in all cases of lateral curvature, for upon the cause must depend to some extent the details of treatment, and also upon the cause must depend the prognosis as to our ability to maintain a correction once obtained. If we can become convinced that these abnormalities represent the cause of the deformity, we are at once faced by the question as to whether in many cases at least we should not attempt to correct the static influence of the deformity by operation, either before or after the correction of the scoliosis. This may furnish a further field for bone grafting and spinal surgery in general. The suggestiveness of this paper of Adams is enhanced by the reports which come in from various sources, in which the authors from their observations feel still uncertain as to the permanence of the results obtained by the forcible methods of Abbott and others.]

JOINT SURGERY.

Murphy³⁶ has written a valuable paper on the technic of arthroplastic operations for bony and fibrous ankylosis of the temporomandibular articulation. He believes the cause to be either an infection or a trauma transmitted from the chin. The differential diagnosis as to which side of the jaw is affected may be extremely difficult. In the intra-articular ankyloses there is sometimes a little motion on the unaffected side. An important point is that the face on the affected side is full and round and apparently normal in appearance, while on the opposite or unaffected side it is flattened and deformed. The chin is always more or less retracted and deviates toward the ankylosed side. The muscles on the affected side are always more atrophied. The most important points in his technic are an

L-shaped incision in front of the ear and along the zygoma. No attempt is made to remove the head of the bone from the glenoid cavity on account of the danger of penetrating the skull. The pedicle flap of fat and fascia is lifted from the surface of the temporal muscle and turned downward. A wooden wedge is inserted between the jaws on the affected side. Mastication is begun in two weeks. He reports nine cases with good results in eight.

W. L. and C. P. Brown³⁷ describe an operation for arthroplasty of the shoulder joint, and while they have had only one case, the result was excellent and the procedure is surely ingenious. The joint is exposed by an anterior incision. The pectoralis major tendon is divided at the humerus and the inner fibres of the deltoid are also divided. The short head of the biceps is cut across about $4\frac{1}{2}$ inches below the glenoid and the muscle with pedicle attached is turned into the glenoid and fastened by sutures. The pectoralis major is sutured if possible and the arm put up in abduction.

Payr's³⁸ experience in arthroplastic operations has been large and his constant attempts to improve his technic and study his results make the report of his further experience of great value. His first cases are now about four years old. He is still impressed with the importance of the removal of the synovia and fibrous cartilage, and if possible of the whole capsule as well. His experiments seem to show that the final tissue covering the bone ends resembles that of tendon sheaths. He has never seen new cartilage formation, and the bursa-like nearthrosis is a unique structure. He finds that the ends of the bones adapt themselves to the mechanism of movement, the spongiosa becoming more dense and a sort of cortical bone forming. As to the indications, Payr considers that it is essential that the operation should be deferred until long after all signs of active inflammation have subsided. He believes this cannot be emphasized too much. Some of his knees have been done in two stages, the first, the mobilization of the patella, and later, after exercise of the quadriceps, the main joint has been reshaped. He approaches the joint by two lateral incisions, having abandoned Kirschner's method of trapezoidal resection of the tibial tubercle, because it was noticed that the healing of the bone was not good. He has evidently had difficulty, as have the Editors, with the occurrence of bony spurs on the posterior edge of the tibia and femur. He believes this may be avoided by removing the periosteum from this region as exactly as possible. He begins massage of the muscles early and gentle movements of the joint in two or three weeks. He employs traction sufficient to separate the bones as much as he considers necessary. In the knee he considers 90 to 100° of motion all that is desirable. In bony ankylosis of the hip he considers a pseudarthrosis of the upper end of the femur may be the best procedure. He reports 11 cases of knee

joints, as 2 bad, 2 good, 7 very good; 3 cases of hip joints as 1 bad, 2 very good; 3 cases of elbow joints, as 1 good, 2 very good; 2 cases of finger joints as successful; 1 case of shoulder joint as unsuccessful.

BONE SURGERY.

Lewis³⁹ summarizes the results of his experimental work in bone transplantation as follows: The cortex, without periosteum, endosteum, or marrow, will remain alive and proliferate when small bits are imbedded in muscle tissue. Direct contact with living bone is unnecessary. Large pieces of bone transplanted onto live bone, remain alive. Bony growth may fill in without the aid of a periosteal or bony bridge, and strips of fascia may take the place of the periosteum as a limiting and nutritional membrane. In one case three inches of the excised shaft where the periosteum had been scraped away, was regenerated in this way. At autopsy nine weeks later, moderately firm bony callus was present, and the fascia had fused with the periosteum further up the shaft with an almost indefinable dividing line.

Bond⁴⁰, in reporting two cases of successful transplantation of the fibula to replace the tibia in which there had been satisfactory increase in size as far as thickening was concerned, but not sufficient growth in length, discusses the controlling factors in this growth. There seems to be little reason to doubt that imperfect epiphyseal function is the cause of defective growth in length. He believes after consideration of various theories that the increase in thickness is simply in response to the necessity of function, and that we may expect these changes in transplants in other parts of the body, although we are unable to describe the process of cell reproduction which brings this about.

Marcuzzi⁴¹ recommends a mixture of equal parts of the phosphate and carbonate of lime as a filling in bone cavities. It is easily sterilized, readily but not quickly absorbed, has a marked affinity for bone, and stimulates osteogenesis. He reports good results.

FRACTURES AND DISLOCATIONS.

Marsiglia⁴² reports experiments undertaken on dogs to determine the effects of injections of emulsions of the hypophysis of calves after fracture. It was found in the dogs studied that the consolidation of the fractures was very much delayed and that the dogs suffered markedly from toxemia, loss in weight, strength, etc.

Tanton⁴³ believes that the gravity of fractures of the coracoid process depends less on the break than on the force necessary to cause the lesion. Malgaigne had six deaths in six cases. With dislocation of the coracoid process inward there is likely to be contusion of the bundles of the axillary nerves, causing complete paralysis of the upper arm, forearm, and hand. This occur-

rence is due to the violence rather than to the fracture. Secondary nervous complications often arise from exuberant overgrowth at the point of fracture. In five out of six cases reported by Dr. Guelt only fibrous union occurred. With displacement of a coracoid process there may be a functional impotence evidenced by a lack of power in the forward motions of the arm. Treatment should consist in immobilization for twelve to fourteen days in forced adduction with a flexed forearm and the elbow elevated. Where there are persistent symptoms from exuberant overgrowth this should be removed.

Saar⁴⁴ has treated six cases of old fractures of the lower end of the humerus which had healed with great backward displacement and complete or nearly complete loss of function of the elbow. In all these cases he mobilized the lower fragment by carefully dissecting away all scar tissue. In some of the cases the lower fragment lay entirely free. He then corrected the position and retained the bone by mortising it to the shaft. In no cases did necrosis occur, and the results in all his cases were good, in two of them normal motion being obtained.

Anzilotti⁴⁵, from a careful study of two cases of forward dislocation of the head of the radius, one recent and one of a year's duration, concludes that in a recent case one should attempt reduction without open operation, but in case of failure to reduce or to maintain the reduction one should make an incision down to the head and replace it, after removing any obstacle. In old dislocations it is necessary to open the joint, remove any obstacles, and if possible replace the head. If this is found impossible one should remove just enough of the head to permit reduction.

Walbaum⁴⁶ reports two cases of the rare fracture of the lesser trochanter, of which, according to his statement, only 12 cases have heretofore been published. In both cases the fracture occurred in connection with running fast; one patient feeling the tear as he abruptly stopped. The symptoms are pain and limping in walking, tenderness over the lesser trochanter, free passive motion, but pain in active motion of the hip joint. Ludloff's sign, the inability to lift the leg from lying position, was positive in one case, but negative in the other. The author believes, therefore, that in the latter case only a part of the lesser trochanter was torn off.

Balthazard⁴⁷ adds another to the cases on record in which after a fall, the patient complaining only of vague pains in the lumbar region, an actual fracture of the spine had occurred. He walked home after the fall, but by the sixth month he complained of girdle pains and there was a hump in the dorso lumbar region. He died from an intercurrent disease, and necropsy revealed that the spine had been fractured, the body of one of the vertebrae had been crushed, and the transverse lamellae broken, but the spinous processes were intact.

[Ed. Note.—We believe that fractures of the spine are much more common than we have been accustomed to consider them. They are associated in our minds with severe immediate symptoms, usually of cord pressure and kyphos, whereas frequently the immediate symptoms are very slight and no kyphos is present. The serious nature of the injury is revealed later when pressure symptoms begin. We feel sure that all injuries of the spine should have an x-ray examination and that when a fracture is found, immobilization should be advised for several months]

Albee⁴⁸ advocates in certain fresh fractures inlaying a bone graft and fastening it with bone autoplasmic pegs. With accurately adjusted twin saws a piece of bone is cut out of the long fragment about five inches in length and a small piece, 2½ inches in length and of exactly the same width and exactly opposite the trough in the long fragment, is cut from the short fragment. From this smaller piece, bone pegs are fashioned by a dowelling machine. The longer piece is inserted in the short fragment and extends an equal distance into the long fragment and is retained by the bone pegs driven through drill holes.

Davidson⁴⁹ reports excellent results in six cases of fracture treated by the introduction of autoplasmic bone pegs made from the tibia. These were introduced into the medullary canal in all cases except in fracture of the neck of the femur, in which a canal was made through the trochanter.

[Ed. Note.—It is quite evident to the Editors that a course in carpentry will soon be a necessary part of the education of every well equipped surgeon.]

MISCELLANEOUS.

Brandes⁵⁰ has studied the time of appearance and the character of bone atrophy caused by disease. He chose the os calcis of rabbits as most suited to his experiments and observed the changes in it as a result of resecting a portion of the tendo Achilles. An atrophy involving both the spongy and compact bone occurred in one week. The tibia and the anterior bones of the foot were involved also. When the function was only partially taken away, as by a plaster cast, an atrophy began very early and was directly proportional to the completeness of the lack of use. From these experiments the author concludes, as did Legg as the result of his similar experiments, that the atrophy seen in disease is the result only of the disuse, and not characteristic of any special disease,—for example, tuberculosis.

A type of enteric fever due to the bacillus *Columbensis* was first described by Castellani⁵¹ in 1905. Certain cultural characteristics and sugar differentiate this organism from others in the paratyphoid group. He describes a case

of this type of fever, in which there were sinuses in the arm, persisting for over a year, from which spicules of bone were discharged, and from which cultures of the *B. Columbensis* were isolated. This apparently represented a peritonitis due to one of the organisms of the typhoid group. The infection is always mild, persistent, and runs a subacute course.

Dehon and Hertz⁵² give the details in fourteen cases of angiosclerotic dystasia or intermittent claudication, and call attention to the fact that syphilis was known in half of them. This large percentage suggests the importance of at least tentative treatment for syphilis in all cases of obliterating arteritis of the legs. One of their patients improved remarkably under specific treatment and the Wassermann reaction became negative. Some with known syphilis had a negative reaction. In some with known syphilis, the intermittent claudication was not benefited in the least by the specific treatment. Tobacco and alcohol seemed to be contributing factors in some of the patients, possibly outweighing in importance the syphilis in these cases. They urge that if any signs of tabes or leukoplakia are present there should be a trial of specific treatment in every case of intermittent claudication, even if there is nothing else to suggest syphilis and the Wassermann reaction proves negative at the first test.

Bailey⁵³ reports four cases of spinal cord tumor and calls attention to the fact that in these tumors pain may be absent, or present only slightly and at intervals. Also that the presence or absence of pain is not of value in determining whether the tumor be extra- or intra-medullary. He says, "We shall have to take the same position in regard to spinal cord tumors as we have taken for years in regard to tabes, that is, that pains may be absent in a disease which is usually highly painful, and that the absence of it in any case presenting other sufficient symptoms does not vitiate the diagnosis."

Goldthwait⁵⁴ has written a suggestive article intended to reach the lay public on the effects of habits of posture on health.

[Ed. Note.—It is undoubtedly true that faulty posture maintained in industrial life becomes a fixed habit and that careless lack of attention also allows a poor posture to become an habitual position of a physically weak individual. These conditions may predispose to various chronic diseases. Although it is quite true that many persons live to be three score years and ten, work hard, and "never have a sick day," and yet are round shouldered, with sagging abdomen, and pronated feet, the efficiency of these individuals must be lessened by these factors. Our attention needs to be called to these matters, but let us not stop there. Proper posture should be a study in every school, ranking with other lessons, and its acquirement made essential to promotion. Gymnasia, with instructors trained in the methods of inducing proper posture must be

developed for general use, if we are going to reach more people than those few to whom we can say, "Sit up straight."]

An article by Lovett⁵⁵ on "The Causes and Treatment of Chronic Backache, with a Consideration of the Diagnosis of Sacro-iliac Relaxation" should be generally read, as the expression of opinion of an eminent orthopaedic surgeon who has given much thought to the subject. Leaving out of consideration the backaches due to tuberculosis, organic nervous disease, and spinal fractures, he considers the common causes are: 1. Pelvic conditions. 2. Traumatism. 3. Arthritis. 4. Defective balance. Sacro-iliac strain or relaxation as an entity, he considers very rare, believing that the backache when located in this region may be attributed to strain upon the muscles, attachments and ligaments in this region, causing a condition of hypersensitiveness and tenderness in which the sacroiliac ligaments are in some cases involved. He believes that the measures often employed to support the sacroiliac joints, such as adhesive plaster and belts, are entirely insufficient to really hold the articulation, and are successful only when they give support to strained muscles or help to maintain a proper balance. The most useful methods of treatment he considers to be: 1. Measures to obtain proper balance, such as corsets, etc. 2. Proper shoes and sometimes supports for the back. 3. Later exercises to develop the musculature.

[Ed. Note.—It is not clear from the article what the author considers the cause of the common sciatic and other nerve root pain which so commonly accompanies both the attitudinal, the traumatic, and the arthritic low backaches. These are frequently relieved by protecting the sacroiliac joints and these alone, by such a procedure as the Italian laborer has learned to adopt, when if hard digging is to be done he shifts his belt from his waist to below the level of his anterior superior spines. He does not know that the difference of a few inches in the circular construction makes the difference as to whether the sacro-iliac joints are sprung apart by pressure applied at the level of the crests of the ilia or held together by pressure exerted in the sulcus between the trochanter and the anterior superior spines, but such is the fact and he does know that his back does not ache when he is thus protected. The author is quite right in saying that any actual displacement of the sacrum downwards is unlikely and possible only as a result of very great trauma. None of the anatomists or clinicians who have carefully studied the movements of the sacrum have maintained that this occurred. (Goldthwait: *BOSTON MEDICAL AND SURGICAL JOURNAL*, May 25 and June 1, 1905. Bouvarre et Bûe: *La Presse Medicale*, Aug. 9, 1899. Herman Myer: *Archiv. für Anatomie*, 1878, p. 1. L. Dieulafe: *Bibliographie Anatomique Supplement*, 1904, p. 109.) Nevertheless, the rotation of the sacrum on its horizontal axis through the second sacral ver-

tebra and slight displacements or subluxations beyond of this normal arc of motion, which the author does not mention, are quite common, we believe, and demonstrable both to palpation and also in good stereoscopic x-ray plates. We cannot explain relief of nerve root pain, when the sacroiliac joints are protected by the theory of relief of strain on the ligaments and muscle attachment of the low back, nor can we explain thus the quick relief which is often dramatic, which sometimes follows manipulation of the joints, either with or without an anesthetic. Muscle attachment and ligamentous strain from faulty attitude and balance are surely a very common cause of backache, but there will, in our opinion, be left many cases not explainable on this theory alone, and in these we believe that lesions of the sacroiliac joints and strains in which abnormalities of the articular and transverse processes of the fifth lumbar are present, will be found not infrequently.]

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Book Reviews.

A Text-Book of the Diseases of the Nose and Throat. By JONATHAN WRIGHT, M.D., Director of the Department of the Laboratories of the New York Post-Graduate Medical School and Hospital; and HARMON SMITH, M.D., Surgeon of the Throat Department of the Manhattan Eye, Ear, Nose and Throat Hospital; Clinical Professor of Laryngology and Rhinology, Cornell University Medical School. Illustrated with 313 engravings and 14 plates. Philadelphia and New York: Lea and Febiger. 1914.

This is a new text-book of 650 pages. It is stated in the preface that "the exceptional feature in the book is the emphasis laid upon the etiology and pathology of disease" and that "much of this work rests on original investigation in the laboratory and clinic." One of the authors is an investigator and a philosopher, whose opinion in pathological problems has long been sought, and who in addition to his other writing has given us a classical history of laryngology. The other is a well-known clinician and operator. They have worked together so that there are no abrupt lines of demarcation between the academic and the practical portions of the text. The first chapter gives briefly the various methods of examination. The next on the external nose includes the results of the long experience of one of the authors with the injection of paraffin. The description of the minute anatomy, both normal and pathological, of the internal nose and also of the pharynx and larynx, is one of the striking features of the book. Another, which will undoubtedly lead to its wide use for reference, is the description of the various neoplasms, not too technical, but given by the hand of a master. The selection and description of operations on the accessory sinuses and nasal septum is good and clear. In the chapter on neuroses of the nose is included hay fever, which is apparently looked upon as largely due to a yielding on the part of over-sensitive persons to insignificant irritations. It is disappointing that the large amount of study which has recently been given to the theory of anaphylactic reaction from the different proteids should not be taken seriously. The important subject of the borderline between normal and pathological adenoids and tonsils is judiciously discussed and various methods of operating described. A valuable chapter, often omitted from text-books, is one on buccal lesions, with which the specialist is often called upon to deal. As a whole the book is a worthy addition to our list of text-books on the subject, and justifies its promise to embody original points in etiology and pathology.

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NEW AND NON-OFFICIAL REMEDIES, 1915.

THE 1915 edition of *New and Non-official Remedies*, published by the American Medical Association, has recently been issued. This little work,* which is prepared by the Council on Chemistry and Pharmacy of the Medical Association, is not as well known to, or as frequently consulted by, the profession as it should be.

As the name implies, the book deals with drugs which have recently come into use and with those which are not yet contained in the United States Pharmacopoeia. Its main purpose is to give physicians a truthful account of the chemistry, properties, actions and, so far as these have been determined, the therapeutic use of the drugs discussed. As a source of information on such subjects, it should largely replace the trade circulars of manufacturers, from

* Copies of "New and Nonofficial Remedies" may be obtained at cost price, postpaid (50 cents for paper-bound, \$1.00 cloth-bound), from the American Medical Association, 535 North Dearborn Street, Chicago, and also through dealers in medical books.

which so many of the less critical members of the profession derive their knowledge of the more recently introduced remedies.

As examples of the drugs discussed in this edition, may be mentioned salvarsan, emetine, theobromine and theophyllin (and the various proprietary preparations of these, such as diuretin and theocin), novocaine, preparations of the pituitary gland, various vaccines and sera, etc. The list is not limited to substances used for therapeutic purposes; it discusses also the most important chemicals and re-agents recently introduced for use in diagnosis, such as phenolsulphonaphthalein, the Noguichi, Abderhalden and von Pirquet tests.

A very useful feature of the work is the fact that the names of the manufacturers who make such preparations and who have satisfied the Council that their products are as represented, are given. It may not be generally known that the American Medical Association maintains in Chicago an exceptionally well equipped chemical laboratory for the purpose of examining new drugs; this laboratory is probably the best source of trustworthy information in the world on such subjects. The fact that so many physicians still derive so much of their information on these subjects from commercial circulars or retail men, in preference to *New and Non-official Remedies*, is highly discreditable to the profession. An examination of the reports of the chemical laboratory of the American Medical Association, or those of the United States Public Health Service, of the records of convictions under the National Pure Drug and Insecticide laws will show how little reliance can be placed upon the claims of many manufacturers. And yet most physicians constantly prescribe and hospitals constantly buy, at exorbitant prices, simple Pharmacopoeia drugs under proprietary names, simply because the manufacturers say, or insinuate, that their products are superior to the U. S. P. preparations, although the quality of the latter is under the jurisdiction of the United States as well as of the state governments. Why do physicians who accept such statements hesitate to accept other statements of these same manufacturers—those concerning the value of their various pastes for the checking of cancer, of various toxins for pneumonia, etc., as well as the out and out "patent" medicines (hair growers, "manhood restorers," etc.) which the same firms prepare for the use of the laity? It

may well be that the future historian of medicine will find this an essentially darker period in some important respects than that of a century ago, when James Jackson and John C. Warren knew enough about the drugs they used to write a pharmacopoeia for the Massachusetts Medical Society.

All drugs are admitted to *New and Non-official Remedies* provided they meet certain simple requirements—requirements based upon principles universally accepted, but unfortunately not adhered to by the medical profession; they must be non-secret, exact information as to composition must be given, grossly exaggerated claims as to usefulness or safety must not be made. Powerful drugs, the use of which by the laity might lead to harm, either direct or indirect, must not, according to the rules governing admission to the book, be advertised in a way to invite self-medication. With these simple restrictions, the reasonableness of which is self-evident, all new drugs of promise are eligible for admission. Physicians should regard with suspicion all proprietary preparations which are not included.

The reason why the products of some manufacturers are not in *New and Non-official Remedies* is that these firms are not dealing fairly with the profession or the public.

Another feature of the work is that emphasis is laid upon the true chemical names of the drugs. Many physicians will find that they are using proprietary names and so helping create monopolies in certain official drugs, as well as in certain chemical compounds; the use of various proprietary names for the same official drug (as in the case of hexamethylenamine, for example) often leads to the greatest confusion.

HEALTH ASPECTS OF SCHOOL LUNCHES.

THE medical profession is to be credited with initiating the movement to feed children at school. Its beginning, in England, can be traced to a memorandum issued many years ago, by the director-general of the Army Medical Service which followed the wholesale rejection of recruits because of physical disability. An investigation showed that the conditions responsible

for this physical decadence were directly attributable to poverty, that this in turn was due to the change brought about by the rapid rise of industrialism following the adoption of labor-saving machinery, and that in consequence of the prevailing poverty the children were being reared as weaklings, incapable of resisting disease and largely impervious to education. As a measure of relief for this deplorable situation the inquisitorial council recommended a school lunch service for needy children, to be maintained at the public expense. An examination of over 330,000 children (one-third of the school population of the city) by the medical inspectors of the New York Health Department in 1913 disclosed some 14,000 cases of malnutrition; and, on the assumption that the same ratio of this condition is to be found in the rest, there would be more than 40,000 children in the schools whose health is impaired owing to a malnourished system. It has been ascertained that in Cincinnati, of 36,438 children examined, 1619 were suffering from malnutrition; in Cleveland, of 61,578, 671; in Newark, N. J., of 27,971, 940; in Rochester, N. Y., of 18,497, 945; and in Worcester, Mass., of 18,342, 389.

While, of course, the provision of a suitable meal at noon is inadequate to overcome such malnutrition, the school lunch service is undoubtedly a palliative measure of great practical service, and one which can be made productive of a widespread influence for good. In the latest *Monthly Bulletin* of the New York City Department of Health there is published a valuable contribution on this subject by Edward F. Brown, executive secretary of the school lunch committee of the Association for Improving the Condition of the Poor. From this it is learned that the New York School Lunch Committee was organized in 1907 for the following purposes: 1. The provision of nourishing lunches on a self-supporting basis for public school children. 2. Special observation of children whose physical condition is such as to give evidence of lack of proper nourishment, in order to determine the underlying causes by a study of their homes and environment. An extension of this aim requires that these selected cases be followed up, to the end that the proper agency may be apprised and appropriate action taken. 3. The formation of special classes of mothers for instruction in the proper care of children, and particularly those suffering from poor nourishment. It will thus

be seen that the work of this committee is very much more comprehensive than the mere providing of nourishing noonday lunches. The need for a school lunch system, as Mr. Brown says, ought really to be regarded as a symptom of a serious social disorder. The necessity of feeding children at school usually arises from either a demoralized home, where the housewife has to work out, indifference of the housewife, or ignorance of home economics. The service of a noon meal is at best to be considered inadequate for a number of reasons, among which may be mentioned the following: Behind each child in need of such a service is a home lacking the facilities for proper feeding; for such a child the need is just as great for its other meals and for feeding on non-school days and in the summer recess; the presence in the family of children of pre-school age; the fact that any desirable effect resulting from the scientific feeding of the child at one meal time at school is likely to be destroyed by the kind of food it gets at home at the other meals. Properly, therefore, the feeding of children should be made part of a much larger social program. At the present time there are in New York twenty schools, registering 32,000 pupils, where the lunch system is operated. The need for such a service was naturally most urgent in districts where the people were impoverished, where mothers worked in factories by day, and where the children depended for food on the few pennies which purchased candy from the vendors about school-houses. An experiment was tried in the equipment of a kitchen in a school building, where soup, sandwiches, puddings and cocoa were provided at the rate of one cent a portion—the child being required to purchase first a bowl of hot soup. The caloric aggregates of some of the typical trays of food provided, the price of none of which exceeds a total of three cents, are given, and these are samples of them:—

Vegetable soup....	85.00	Bean soup.....	111.27
Egg sandwich....	236.00	Bread, two slices.	200.00
Rice pudding.....	108.76	Prunes.....	180.00
	<hr/>		<hr/>
	429.76		491.27

Aside from its other advantages, the school lunch system affords an admirable opportunity to teach the children the science of feeding, including the purchase, preparation and hygiene of food. Fundamentally, the work is devoid of any mark of poor relief. During the last school term 1,249,489 portions of food were sold; for

which the children paid \$12,494.89. The service was not quite self-supporting, for a deficit equal to a little over one-third of a cent per portion was incurred, and this was made up by a benevolent lady.

Naturally, in any scheme for feeding large groups of children, where the prime object is the rearing of a vigorous race, a scientific basis is essential. The working force of the committee is headed by a dietitian, who is responsible for the character of the food and service, and the principles on which food is selected are: (1) nutritiousness, (2) palatability, (3) purity, (4) seasonability, (5) inoffensiveness to racial or religious preferences, (6) similarity to home food, (7) balance in accordance with food principles. When the committee is assured that an article of diet meets with these requirements, a sample order of the raw product is secured, and it is then submitted to three tests: chemical, bacteriological and food value. Coöperation with the health department is stated to have yielded the most encouraging results. Analyses have been made by it, and also by some of the university laboratories. Furthermore, health authorities in other places have always aided when asked to inspect the manufactories in their communities. Where there is every indication that the product itself is pure, the place where the food is manufactured is inspected, and, in purchasing, preference is given to firms maintaining the best conditions. The social value of encouraging trade where decent conditions of work and welfare prevail is, it is felt, not only a just recognition of good public service, but a rebuke to the manufacturer who thrives on adulteration, over-work and under-pay; and here one recognizes another measure in the interest of public health, for in the degree that we demand livable conditions of labor shall we secure a diminution of incapacity, sickness and death. Where foods are found to contain harmful matter, or where the conditions of manufacture or sale are unhygienic, information is laid before the health authorities for action. This usually prevents the further distribution of a product which is likely to cause injury, and thus there is an educational advantage in this system which can scarcely be overestimated. An additional precaution to ensure the purity of the food dispensed is the careful scanning of the lists of convicted food adulterers prepared weekly by the health department. Of course, scrupulous care is taken to have the kitchen and service equipment entirely hygienic,

and in order to prevent the possibility of disease transmission in the preparation and handling of food, the committee had the health department make a thorough physical examination of all the school lunch employees, and also of a hundred children who assist in the service. The argument has often been advanced that the feeding of children at school causes shiftless parents to shirk their just share of responsibility in the nurture of their offspring; but this has not been found to be the case. On the contrary, the school lunch employees, coming in contact with the parents in the districts, are often consulted regarding what foods to prepare for children at home, and how to prepare them. Certainly, the New York School Lunch Committee is to be congratulated on the valuable and far-reaching work it is accomplishing.

SYPHILIS.

WE wish to direct the attention of every reader of these pages, whether man or woman, physician or layman, to the article by Dr. J. Harper Blaisdell which is printed in this issue, under the title of "The Menace of Syphilis to the Clean Living Public."

There is no doubt that many persons contract syphilis innocently and that many more are exposed to this danger. It has been pointed out that even those who lead the most sheltered lives are not free from this menace.

Must the innocent always be thus endangered, and how great is the risk?

Before answering these questions a store of accurate information must be collected.

Several years ago, as stated by Dr. Blaisdell, New York City made syphilis a reportable disease with this end in view. Statistics as to prevalence, distribution, and source of infection in a community must prepare the way for effective action.

Is it known how many syphilitics there are in our community, how many of them daily endanger their associates, or how many persons with lesions on the hands are engaged in the preparation of food?

These things cannot be known until all cases of syphilis are reported promptly to the local health authorities

Let us as physicians each and all prepare to do our parts in the campaign already being waged against syphilis, the tragic consequences of which we know full well.

THE QUESTION OF QUARANTINE TRANSFER.

IN previous issues of the JOURNAL we have, from time to time, commented editorially on the relative merits of federal and local control of quarantine service and, after discussion, have advocated the transfer of the Boston Quarantine Station from municipal to national administration. On March 23 the Boston City Council committee on ordinances reported favorably on the pending plan for effecting such a transfer, and it is expected that the necessary ordinance will ultimately be adopted by the council. At a meeting of the committee, the Boston Chamber of Commerce submitted a further report in which its previous opposition to the transfer was largely withdrawn. This report was based on a previous report by Mr. Robert Luce, chairman of a special committee of the Chamber, to whom the subject was referred. Mr. Luce's report expressed confidence that the federal government, in the event of transfer can be relied upon to provide adequate accommodations for detained immigrants and that the officials will afford the work as prompt and efficient a service as that which it at present enjoys. The final report of the Chamber further calls attention to the high local cost of maintaining quarantine service and the desirability of uniformity in quarantine administration from the point of view both of public health and of the commercial and shipping interests. The report continues as follows;—

"Furthermore, there appears to be reasonable ground for the expectation that in the near future it will be necessary to build a new detention hospital at Gallop's Island or elsewhere, and it is averred that the cost thereof may run as high as \$250,000. We were told it would be possible at present in case of emergency, to house nearly 1000 persons under roofs on the island. In the summer more could be maintained in tents, but it seems clear that provision ought to be made for winter conditions.

"If the United States takes over the station, it will proceed at once to make repairs under an

annual appropriation available for the service, and will proceed at once to acquire from Congress funds available for any new construction necessary.

"Manifestly it is important to the shipping interests that the quarantine station be adequately provided with personnel and equipment to handle vessels with the greatest possible expedition in ordinary times, and the least possible detention of the ship itself in case infection is found aboard. An outbreak of plague here would paralyze commerce by reason of attempts at self-protection on the part of other ports.

"Nothing indicates that our local quarantine service is not effective. On the contrary, it is praised. Yet whatever can be done to make it still more effective and to guard against every possible contingency would seem to be the part of prudence.

"The chief weakness of the present arrangement appears to be the usual weakness that follows a division of authority. Under normal conditions, all goes well. When the emergency comes and the second authority steps in, then come uncertainty, misunderstanding, friction, delay, economic loss, danger to the community. Unified administration lessens these chances of injury, and in that particular matter brings about certain specific advantages."

As the result of this reconciliation of the Chamber of Commerce to the proposed quarantine measure it is earnestly to be hoped that the transfer of the Boston Quarantine Service from local to federal control may soon be effected.

MISCELLANEOUS MATTERS OF MEDICAL LEGISLATION.

BEFORE the Massachusetts General Court, several measures of medical legislation upon which comment has been made in previous issues of the JOURNAL, have recently been acted upon as follows. The anti-vaccination bill was given leave to withdraw. The anti-vivisection bill was defeated by the House. A bill was reported by the committee on counties authorizing Barnstable County to construct and maintain a hospital for tuberculates. The public health committee reported favorably the bill requiring applicants for registration in medicine to be graduates from a medical school approved by the State Board of Registration in Medicine, or to possess an equivalent training.

The text of this important bill (House No. 745) is as follows:—

Section three of chapter seventy-six of the Revised Laws is hereby amended by inserting after the word "character," in the fifth line, the words:—and a graduate of a legally incorporated school of medicine,—so as to read as follows:—
Section 3. Applications for registration shall be made upon blanks to be furnished by the board, and shall be signed and sworn to by the applicants. Each applicant for registration shall furnish satisfactory proof that he is twenty-one years of age or over and of good moral character and a graduate of a legally incorporated school of medicine, and, upon payment of a fee of twenty dollars, shall be examined by said board. If he is found by four or more members thereof to be twenty-one years of age or over, of good moral character and qualified, he shall be registered as a qualified physician and shall receive a certificate thereof signed by the chairman and secretary. An applicant who fails to pass an examination satisfactory to the board, and is therefore refused registration, shall be entitled within one year after such refusal to a reexamination at a meeting of the board called for the examination of applicants, without payment of an additional fee; but two such reexaminations shall exhaust his privilege under his original application. Said board, after hearing, may by unanimous vote revoke any certificate issued by it and cancel the registration of any physician who has been convicted of a felony or of any crime in the practice of his profession. All fees received by the board shall, once each month, be paid by its secretary into the treasury of the commonwealth.

The committee on public health reported adversely on the bill and recommendation submitted by the State Board of Registration of Nurses. This recommendation contained in the fifth annual report of the board, was as follows:—

"The board recommends the passage of an amendment to the present act which will provide for the registration of two classes of nurses. The title R.N., meaning registered nurse, authorized for nurses who are graduates of approved training schools, and who can meet the requirements of an examination which would determine the fitness of a nurse to do any work a nurse might be called upon to do, and another title, that of H.N., meaning household nurse. Such nurses, with the title H.N., would, under this act, be permitted to take care of ordinary cases of illness, but could not nurse major surgical cases."

The defeat of the anti-vaccination and anti-vivisection measures is, of course, cause of congratulation to the medical profession. It is perhaps best that the bill on the registration of nurses should fail to pass at this time. It may

be hoped that that on the registration of physicians will have a more favorable fate, and physicians who favor it should write to their representatives and personally attend any further hearings upon the subject.

MEDICAL NOTES.

JORDAN MEMORIAL SANATORIUM.—The recently published second annual report of the Jordan Memorial Sanatorium, River Glade, New Brunswick, for the year ended October 31, 1914, gives an interesting record of work accomplished in the cure and arrest of tuberculosis. The number of patients admitted during the year was 87. Of this number six were discharged as cured, 13 as apparently arrested and 36 as improved.

POLIOMYELITIS IN DORSETSHIRE.—In a recent issue of *Public Health*, Dr. Rory McLaren, public health officer of Dorsetshire, England, records an acute epidemic of poliomyelitis in Beaminster, a town of 1700 inhabitants, eight miles from the English Channel. In this agricultural community the first case of infantile paralysis appeared on August 2, 1914. Sixteen other cases followed within a month, all within a mile and a half of the center of the village. Six of the cases died, five survived with serious paralysis and six recovered with slight disability. This typical severe outbreak conforms definitely with the infectious character of the disease and the probable method of its transmission by an intermediate insect host.

ADIRONDACK COTTAGE SANITARIUM.—The thirtieth annual report of the Adirondack Cottage Sanitarium, Saranac Lake, N. Y., contains a carefully detailed and interesting record of the work of that institution. Of the 229 patients treated during the year, 20.5% were discharged apparently cured, 43.7% were discharged with disease arrested, and 11% improved. The total contributions for the year amounted to \$63,620.67; contributions to the general fund amounted to \$14,432.71; to the x-ray account, \$3,100.00.

INCREASING DEATH-RATE FROM ORGANIC DISEASE.—The Life Extension Institute of New York has recently issued in pamphlet form an address by its president, Elmer E. Rittenhouse, entitled "America's Pressing Mortality Problem." Accompanying the text is a series of charts showing graphically the rapid increase of deaths from apoplexy, kidney and urinary disease and cardiac and circulatory disease in the United States and a corresponding decrease of

deaths from these causes in England and Wales.

In concluding his discussion of these facts, the author states, as his solution of this problem, that education in individual hygiene is the remedy for these alarming conditions and the ultimate means by which length and efficiency of life may be attained.

TYPHUS IN SERBIA.—It is reported by the war relief committee of the Rockefeller Foundation, on its return from a tour of inspection through Serbia, that typhus, typhoid fever, cholera, smallpox, diphtheria, scarlet fever, and recurrent fever are all existing in epidemic form. Typhus, the most deadly of these, already has caused the death of 60 out of 400 native doctors of the country. The foreign Red Cross units have suffered great losses. Two American units and one British have been compelled to suspend their regular work because of typhus. Nine American nurses and two physicians have contracted the disease. The Serbians assert that Austrian prisoners of war who were permitted to wander over the country, introduced the disease and infected the population.

ANNUAL REPORT OF THE CRAIG COLONY FOR EPILEPTICS.—In presenting their annual report to the Legislature of the State of New York, the board of managers of the Craig Colony for Epileptics, Sonyea, N. Y., make the following statement:—

"On September 30, 1913, the census was males, 763; and females, 664, total 1,427. There were admitted during the year 125 males, 86 females; total 211. There were discharged during the year 136 males and 81 females, a total of 217, making the census on September 30, 1914, 752 males and 669 females; total 1,421. From the time of the vaccination against typhoid fever of all employees and patients in the infirmary in 1912, no cases of this disease developed until in September, 1914, when three cases were diagnosed. It is believed that a carrier was the source of infection. The number of patients in the colony having tuberculosis approximates 200."

As is usual the report contains an interesting record of autopsies performed on 87 patients.

NEBRASKA ORTHOPEDIC HOSPITAL.—The seventh biennial report of the Nebraska State Board of Charities and Correction contains an interesting account of the Orthopedic Hospital maintained by that state. Since its establishment in 1905, it has treated nearly 1,000 patients. A new building for its use is in process of completion and when finished will increase the capacity of the hospital to 150 patients and make it one of the largest strictly orthopedic hospitals in this country. Its record for the two years beginning November 30, 1912 is 690 patients received, 279 discharged as cured, 258 discharged as benefited, 30 discharged as not improved and 16 deaths.

ANNUAL REPORT OF THE BATTLE CREEK SANITARIUM.—The recently issued report of the Battle Creek Sanitarium, Battle Creek, Mich., for the year 1913 shows a steadily increasing number of patients attending this institution and a constant broadening of the field of work here attempted. Since its incorporation in 1876, the number of patients treated has risen from 182 in that year to 5,693 in 1913. Improvements involving the expenditure of more than \$50,000 were made during the year. An advance in the work of the institution was initiated by the appointing of a committee to organize and equip a children's ward. In 1913 the number of patients aged 15 years or under was 176, the average number being 17.6.

In the first week of January, 1914, a Race Betterment Conference was held at the sanitarium, the expenses of the movement being borne by the Race Betterment Foundation, a philanthropic association which is closely allied to the sanitarium and which undertakes the support of numerous lines of philanthropic work directly or indirectly connected with it.

EUROPEAN WAR NOTES.—On March 27, the total of the New York Belgian relief fund amounted to \$995,579.59; the American Jewish relief fund to \$579,996.53; the New York Red Cross fund to \$475,350.34; the New York Committee of Mercy fund to \$137,523.71; the New York Polish relief fund to \$28,916.92; and the New York Serbian relief fund to \$25,217.00.

On March 28 the total of the New England Belgian relief fund amounted to \$238,503.92; the Massachusetts Red Cross fund to \$116,495.40; the Boston branch of the American Ambulance Hospital fund to \$56,348.25; the Boston Polish relief fund to \$38,775.87; and the Boston branch of the Prince of Wales fund to \$12,500.00.

BOSTON AND NEW ENGLAND.

EUGENIC LAW IN VERMONT.—Report from Montpelier, Vermont, states that on March 22 the Legislature enacted the so-called eugenic marriage law providing a fine of \$500. for any person who marries without a physician's certificate of physical and mental fitness.

MASSACHUSETTS DISTRICT HEALTH OFFICERS.—Notice was issued by the Massachusetts State Department of Health on March 23 that the eight new district health officers recently appointed by Dr. McLaughlin are to begin their duties April 1.

MILK AND BABY HYGIENE ASSOCIATION.—The sixth annual meeting of the Boston Milk and Baby Hygiene Association was held in this city on March 23 under the presidency of Dr. Charles W. Eliot. The principal address was by Dr. S. Josephine Baker on "The Community and the Baby." The annual report of the director

showed that during the past year 4,097 babies were treated at the 12 milk stations maintained by the association, whose nurses made also 50,275 visits to patients in the latter's homes.

ORGANIZATION OF THE EAST BOSTON MEDICAL ASSOCIATION.—On March 19, a number of physicians of East Boston met and organized the East Boston Medical Association. The following officers were elected: Dr. Frank Tilton, president; Dr. Robert Barney, vice-president; Dr. A. L. McLaren, treasurer, and Dr. J. D. Taylor, secretary.

EPIZOÖTIC OF FOOT AND MOUTH DISEASE.—At the Westboro Lyman School 61 hogs, valued at \$877, were found to be infected with foot and mouth disease following an attack of hog cholera, and were slaughtered. A herd of 70 cows kept near the hogs showed no signs of the disease.

MASSACHUSETTS HOMEOPATHIC HOSPITAL.—The recently published annual report of the Massachusetts Homeopathic Hospital states that during the year ended December 31, 1914, 23,260 patients were treated in the various departments of the institution, an increase of 808 over the previous year. In the wards of the Main Hospital there were treated 6,533 patients as compared with 6,508 a year ago. At the Haynes Memorial there were treated 838 patients as compared with 455 patients a year ago. The follow up system of the hospital has been enlarged and a social service worker engaged. The methods of fire protection over the hospital have been improved, \$3,442.89 being expended for this purpose. The report also contains a picture of the new maternity and out-patient building in process of erection, which will greatly facilitate the work of these departments.

LAWRENCE GENERAL HOSPITAL.—The thirty-ninth annual report of the Lawrence General Hospital, Lawrence, Mass., conducted by the Ladies' Union Charitable Society of that city, for the year ended September 30, 1914, shows that institution to be in a commendable state of efficiency. The total number of patients admitted to the hospital during this period was 1833. The out-patient department treated 1679 patients, and the orthopedic department, 558. The maximum number of patients in any one day was 93 and the minimum 46.

On October 8, 1914, Sarah Frances Shackford, the last survivor of the charter members of the Ladies' Union Charitable Society, died at her home, at the age of 75. She was at that time president of the society, having served continuously, in one office or another, since the organization of the society in 1875.

The hospital has been enlarged by the addition of a children's ward, the gift of Mr. Joseph Shattuck, and plans are drawn up for another building to be used as a nurses' home.

NEW ENGLAND BAPTIST HOSPITAL.—The twenty-first annual report of the New England Baptist Hospital, Boston, for the year ended December 31, 1914, shows that during the year, 12 patients were admitted. Of this number 105 received medical treatment, 499 surgical treatment and 70 were maternity cases.

The president of the corporation states in his report:

"The year just closed has been one of the most interesting in our history from every point of consideration. Our service to the community has been the largest, our receipts from all sources have been very materially increased, the amount of free service has been much larger than any year, with one exception, and the number of major surgical cases has been more than doubled, compared with former years, with a very gratifying low percentage of deaths."

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending March 23, 1915: Diphtheria, 66, of which 3 were non-resident; scarlatina, 48, of which 7 were non-resident; typhoid fever, 6, of which 1 was non-resident; measles, 177, of which 2 were non-resident; tuberculosis, 53, of which 3 were non-resident. The death-rate of the reported deaths for the week was 19.12.

Correspondence.

PARIS LETTER.

(From Our Special Correspondent.)

TYPHOID FEVER IN THE WESTERN ARENA OF WAR.

PARIS, March 13, 1915.

Mr. Editor: In casting about in my mind for a heading to this letter I remembered the title of a book said to have once really existed: "English As He Is Spoke." So I propose to place as a supercription to the following remarkable document the thoughtfully ungrammatical sentence: "Typhoid fever she should *not* be took-care-of!"

In my last letter I referred to the universal dissatisfaction manifested here as regards the care of the sick and wounded from the fighting-lines. The main defence of the Service de Santé is that they have been utterly swamped by the number of men to be handled, which has proved to be in the proportion five to two, as regards the number they expected to handle and for which they had made provision. I also cited the somewhat peppery remark which a deputy claimed to have made to the director of this health service. Today I think I will give, nearly in full, a letter received from one of the temporary hospitals, to show that, perhaps, this deputy's sentiments are not altogether unjustified. When the war had been going on a few months, and the authorities saw at their antiquated nursing-system was giving such poor results, they decided to incorporate quite a body of properly-trained nurses from England into their sanitary formations, in the hope in this manner to leaven the entire lump of dough; arrangements were consequently made for the gradual moving across

the Channel of three hundred of these women, to be as picked a body as was possible under the present tight circumstances, the idea being to distribute them about among the military hospitals in little groups of four or five. The results of this move might really have been foreseen! The French voluntary organizations of amateur nurses,—who after all had been doing their very best, naturally,—were stung to the quick at this aspersion on their capabilities; they "saw red," as the expression goes, and in many places made the life of the English invaders a mild little kind of sheol, in which line of action they were often backed up by the medical attendants. So now the plan has been modified, and the endeavor is being made to place these nurses in groups by themselves, in such a way as practically to give them entire charge of the patients of whom they have the care. Among the first of these nurses to come over was an old friend of mine, a very bright woman of wide experience, and the following is the letter she wrote me soon after reaching her post. Comment on it is unnecessary. I will merely add that another nurse, to whom I showed this letter, tells me that she has seen a typhoid hospital of nearly one thousand cases, with conditions similar to these. I certainly am devoutly thankful that I have no son in this war. If I had, I might, perhaps, stand with fortitude his being killed in battle for his country's liberation; but what would *not* be hearable would be to have his life played with in this fashion.

"I am afraid you would be quite overcome by the awfulness of this place; it is a veritable pest-house we have got to, this time. There are eighty patients in all, and oh! what a desperate state they are in! This is only a temporary hospital, formerly a school, and the sick men are distributed about in different rooms. Up to the time of our coming there were only two real orderlies for medicine, temperature, hypodermics and cupping, two for giving the lotions, a sort of cross between a tub and a sponge, two for carrying up the food, and one on at night. You can half imagine the state we found the poor souls in. Up to three weeks ago the wounded were brought here; but now it is only for the worst cases of typhoid. There is a pump in the courtyard, and some warm water in the kitchen stove at times; but there is not a tap in the place, and every drop of water must be carried upstairs. The carrying would not be so bad, if we only had something to carry in: there is only one jug in the whole place (2½ litres), and although we ask, and are promised, we have not received anything further yet except five hygienic pails (there was only one when we arrived). There are just five basins for washing the patients,—five for eighty men! And not a pillow in the whole hospital, only little bolsters. There were only eight spitting-cups,—the men have been using the floor up to now; but by agitating we have been supplied with twenty condensed milk cans for this use. There is only one chair in each ward, and no bed-tables; so mugs, cups, everything goes on the floor, which is black, never scrubbed, only sprinkled with carbolic, as they do in the Paris Metro, and then swept with a wet broom, thereby grinding the dirt into the grain of the wood. The windows do not appear to have been cleaned since the building was put up, some fifty years ago. There is no place yet provided for disinfecting linen. I keep begging for formol, but apparently it is considered too costly. The mattresses are all old ones from the barracks, straw and lumps of wadding, all more than filthy and smelling frightfully, as you will understand when I tell you that they do not own such a thing as a rubber draw-sheet. The men seem so surprised when we want to change a sheet after an involuntary motion! The patients have been allowed to walk out of the rooms to the w. c., whether tottering and delirious or not, and when they are to have a lotion the orderlies have been making them leave their beds naked, go to the middle of the ward, and lay themselves down on a

cold wet sheet arranged over an India-rubber sheet on an ordinary stretcher. The lotions are ordered two, three or four times a day, and never at night, regardless of temperature, which is never taken oftener than twice a day. Nearly every patient gets quinine, and most of them are quite deaf from it. B-naphthol, aspirin, and cinchona wine are the regulation remedies, together with two kinds of hypodermics, caffein and camphorated oil,—a man up and about may be ordered a hypo of camphorated oil!

"When we first got here we all of us stayed on duty all night, to try and clean up the patients and make their beds. The men say one and all that they have not been washed for three weeks, or had their beds made. You cannot imagine what an awful state their mouths are in. I came on regular night duty on Sunday, and began with a death, a poor lad of only eighteen. I may say that the doctor is never to be sent for; he just comes once or twice a day, and lives in the town. This poor boy died in full view of all the patients, such a thing as a screen being unheard-of here, and after he died two orderlies just carried him away to the attic. As they were doing this a delirious man left his bed and was fumbling at the door, so that the orderlies had to put down the stretcher with the body on the landing and secure the wanderer. In the meantime several other patients were going to and from the w. c. and had to step over the corpse. It is all so gruesome, and so frightfully unhealthy,—little better than a pesthouse. The w. c. is on each landing, in full view, and consists of a wine-vat cut in half with a board across for a seat; they are, of course, in almost constant requisition!

"I cannot possibly continue for long in these conditions, with only one orderly to help me at night. We are also always short of disinfectant. If you could see me in this ward, with ten delirious cases, others coughing all the time, and others muttering! One feature about these men is curious, there seem to be so few bad hemorrhages; I wonder whether that can depend on the fact that many of them were inoculated on reaching the hospital? The majority are very serious cases, with bronchopneumonia, or pleurisy."

"S."

FIELD SURGERY ON THE POLISH BATTLEFRONT.*

KEMBLING, December 4, 1914.

Russian Poland near Lodz.

I am still alive in spite of being now four months in war. You can hardly imagine how sorry I was when I understood at that ominous Saturday, 1st of August, that I could not see you any more. For years and months I was looking forward with joy and happiness to seeing you at my house, and to having you for several days in Berlin, and then you were in Berlin and I could not even see you. The four months following that day were the most eventful of my life. Right away I was called to the front and was happy to follow and to obey this call. At first for about two weeks I was captain-surgeon in an old and famous dragoon regiment in Allenstein. There it was my duty to examine all the young and old fellows who wished to enter voluntary service. The court of the barracks was day by day crowded with men, not only with working men, but mostly with men of the upper classes. The enthusiasm was simply tremendous. It was impossible to take them all, although they insisted and begged, considering it as the greatest misfortune of their lives that they had not been able to be enlisted. Besides this business of examining I had to vaccinate all the soldiers of my regiment. You can imagine that this kind of work did not please me for a long time and after trying a

while I got another kind of work more like my specialty. I became captain-surgeon at a field hospital. Now I could work surgically and soon I went to the battle fields. My first experiences were at the little battle of Bialla, near the Russian frontier; they concerned, however, a very small number of wounded men, Germans and Russians. However, a few weeks later during the last week of August, I had the great luck of participating at the great battle of Tannenberg. I do not know how much you are informed of the events of this war, but surely you will know this tremendous historical event, one of the greatest victories of this war, where a relatively small German army captured a much bigger Russian army. Two weeks afterward I took part in the second great East Prussian battle "at the Masurian Lakes." The numbers of wounded men, both German and Russian, were overwhelming. We worked for weeks, day and night, at our field hospital. Besides this I had the special order after Tannenberg to take charge of one big Russian field hospital captured at Hohenstein. The work of a field surgeon is nowadays quite different from what it was formerly. Whoever expects to do great operations, amputations, excisions, etc., will be greatly disappointed. Conservative surgery is triumphing. I mean, of course, right away on the field and at the field hospital. Well adapted bandages, good fixation of the damaged joints and bones, plasters, and splints,—that is the point of field surgery, and not only of surgery of the extremities, but also in abdominal surgery it is much better not to operate in the field but later in the so-called "reserve hospitals," which are located near the boundary in a rather safe region. Therefore, again transportation plays an eminent rôle in modern war and motor cars are of tremendous use for war-sanitary-purposes. I presume that the triumph of conservative surgery in this war will be of eminent advantage for orthopedic surgery after the war. The two above-mentioned battles liberated East Prussia entirely from the Russian invasion, at least for several weeks and our army was free to enter Poland. The first expedition into Poland in which I participated went over Czenstochava, Radow, until very near Varsovie, capital of Poland. It was a march of tremendous laboriousness, the weather being rainy and cold during all the days, the streets of Poland being in an unheard-of condition, our horses being in morasses sometimes over their knees, and still we did not lose a single horse or wagon of our field hospital, and reached Warnhau or Varsovie, i.e. the neighborhood of this city, in less than twelve days, marching day and night with very little rest.

Nobody knows yet, with surety, what the idea of this quick march was and what the task of the return march has been which was made soon afterward. Surely it was not a flight, for we marched out of Poland more slowly than we marched towards Varsovie and surely the whole business was intended by our chief generals. For as soon as we entered Poland and we progressed, I had the exact order to send the wounded back to the frontier and not to treat them here. And every treatment had to be as fast as possible. For instance, in Grojeo, a little town near Varsovie, I had to bandage 450 men in one day and night, in order to fit them for transportation. The whole month of October we spent in Poland. As soon as we returned to Germany orders came for a second invasion into Poland from another point of the frontier. And now for three weeks our troops stand near Lodz, after having had some victorious battles on their way from Germany. We expect that these battles now will bring us the decision not only of the war against Russia, but of the entire war. It is true the Russians are much more numerous than we are, but this fact so far during the war was not of so great importance, the Russians thought. To my mind it shows enough the minor quality of the Russian army, that they were not able to carry war for any length of time into Germany. The point is,—and that I have a hundred proofs for,—the Russian soldier has

* Letter from Dr. M. Böhm, former director of the Medico-Mechanical Department of the Massachusetts General Hospital, to Dr. R. B. Osgood, of Boston.

idea what he is fighting for. You ask the captured and wounded,—and I have seen thousands,—whether they would like to return to their army if I dismiss them and they all will beg you to keep them. They all have a kind of stupid energy, but no intelligent enthusiasm whatsoever. Lately, during the last fights, the wounded Russians were often drunk. It seems that alcohol is used to drive them into the front. I personally believe we shall master the Russians in a relatively short time. Whether this means the end of the war, that, of course, depends largely upon other factors, particularly upon England. This is the most interesting moment in this war. Of course, you probably have your own opinion on this question and you will read in your papers and also in our papers great discussions upon the cause of the war. It is a pity to waste so much ink on this question. Nobody is the cause, history is the cause, general world conditions have brought it about.

I am afraid I have bored you too much with my talk. I have had four free days, living in a lonely Polish peasant house,—that may be my excuse. The purpose of my letter has originally not been to give you a political exposé, but simply to send you my warmest greetings and wishes for Christmas and New Year. I beg you, since I am unable to write Christmas cards, to give my regards to all my old good Boston friends, and my warmest wishes and greetings from your old

BÖHM.

P.S. If you know what it means it might interest you that since the battles in East Prussia I am "a knight of the iron cross."

QUESTIONS ABOUT THE HARRISON LAW.

BOSTON, March 16, 1915.

Mr. Editor: The new Federal law in regard to the dispensing of opium, the Harrison law, apparently imposes what I consider a dangerous limitation on doctors. For many years I have demanded that the druggist should write on the box a copy of any prescription which contained opium. This I consider a safeguard to the patient, and a help to the doctor. I have followed this practise since I knew of a case in which a mother gave a one-fourth grain morphine suppository to an infant to move the bowels. I recently criticized a reliable druggist who did not follow my directions, and was told that the Harrison law forbade such a practise.

It seems wise that the BOSTON MEDICAL AND SURGICAL JOURNAL should ask for a ruling on this question from Washington.

Respectfully,

HENRY JACKSON, M.D.

March 17, 1915.

Mr. Editor: Since writing the above, two druggists say they consider it proper to put the prescription on the box. They quote the rulings on proprietary medicines which demand this practise. Truly,

HENRY JACKSON, M.D.

[NOTE.—There is nothing in the Federal law which prohibits the prescription from being written upon the label of the container. The State law, however, provides that: "The prescription shall not be copied except for the purpose of record by the druggist using the same."

There is nothing in either law which prohibits the prescriber from giving whatever information or direction he may deem necessary for his patient to receive; and if he thinks it is best, he can direct that the amount of narcotic, which the prescription contains, shall be clearly stated upon the label. This can be done without a copy being made.

The following rules interpreting the Harrison Law have recently been issued by the collector of internal revenue, port of Boston and are reprinted here for the further aid and guidance of physicians.

"A physician, registered under the law, must keep a record of the drugs dispensed, distributed or administered by him in his office. A record is also required to be kept of those drugs left with a patient to be taken in the physician's absence. No record is required to be kept of those drugs personally administered by the physician to the patient when away from his office.

"A physician or dentist who uses only minute quantities of drugs affected by the act, such as oculists, aurists and other specialists, may keep a record of the date when a stock solution is made and the date when such stock solution is exhausted, without keeping a record of the name and address of each patient to whom such drugs are administered. Where a physician engaged in a general practise otherwise administers such drugs, it will be necessary for him to keep a record of the date when any such drug is dispensed or administered, the kind and quantity, and the name and residence of the patient.

"Hospitals and sanatoriums must keep a record of drugs dispensed, distributed, or administered therein.

"Government, state, county and municipal officers, lawfully engaged in purchasing drugs specified in the act for the army and navy, the public health service and for government, state, territorial, district, county, municipal or insular hospitals or prisons, are held to be exempt from the provisions of the act relating to registry and special tax, to purchase and use of such drugs and to the keeping of records. Any such officers, however, engaged in private practise must register, pay special tax and keep the records, and comply with all the requirements of the law and regulations."]

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE FOR THE WEEK ENDING MARCH 20, 1915.

CONTRIBUTIONS.

Sebastian Co. Medical Soc., Fort Smith, Ark.	\$ 15.00
Dr. F. W. Johnson, Boston, Mass.	25.00
Dr. E. P. Quain, Bismarck, North Dakota	10.00
Dr. N. O. Ramstad, Bismarck, North Dakota	10.00
Dr. Haven Emerson, New York, N. Y.	15.00
Dr. Edward B. Angell, Rochester, N. Y.	10.00
Dr. T. A. Davis, Chicago, Ill.	25.00
New Bedford Med. Soc., New Bedford, Mass.	50.00
Dr. Newton B. Waller, New York, N. Y.	5.00
Dr. Charles G. Eicher, McKees Rocks, Pa.	5.00
Dr. William H. Perry, Sterling, Ill.	5.00
Dr. F. A. Spafford, Flandreau, S. Dakota	10.00
Dr. George L. Johnson, Newfolden, Minn.	1.00
Salt Lake Co. Med. Soc., Salt Lake City, Utah	100.50
Dr. and Mrs. Clem D. McCoy, Kenton, Ohio	50.00
Dr. E. A. Weiss, Pittsburg, Pa.	10.00
Dr. Hubert Claytor, Hopkins, S. C.	5.00
Dr. C. E. Goodman, Virginia, Minn.	5.00
Tri-County Medical Society, Copiah-Lincoln-Pike Counties, Miss.	10.00
Dr. Harold W. Dana, Boston, Mass.	25.00

Receipts for the week ending March 20.....\$ 391.50
Previously reported receipts.....4830.00

Total receipts.....\$5221.50

Previously reported disbursements:

1625 standard boxes of food @ \$2.20..\$3575.00

512 standard boxes of food @ \$2.30.. 1246.60

Disbursements for the week ending

Mar. 20:

173 standard boxes of food @ \$2.30.. 397.90

Total disbursements.....\$5219.50

Balance\$2.00

F. F. SIMPSON, M.D., Treasurer,
704S Jenkins Arcade Bldg.,
Pittsburg, Pa.

In an address delivered recently by Mr. Lindon W. Bates, vice-chairman of the Commission for Relief in Belgium, he said:

"The Commission was granted by the German Government not only the sole right to transport food into Belgium but given the active sympathy and aid of the German military authorities. Despite reports to the contrary, not one pound of food sent in has been appropriated. The treasury of the Commission draws from the generous heart of the world. Into this treasury has been put also all that the enveloped Belgian race could gather of the remnants of their shattered fortunes. It registers their struggle for survival. It represents their very all—the all that the better-to-do can give to help themselves and unreservedly to help their fellow being in the ranks already destitute and starving. This is our main purchasing fund—the greatest and the sacredest of all the donations."

The contributions made by the American doctors, through the Committee of American Physicians for the Aid of the Belgian Profession, are placed in the hands of the Commission, for distribution among the members of the Belgian Profession and their families.

Mr. Brand Whitlock, American Minister at Brussels, is credited with saying on March 17, that the food then in Belgium would not last longer than April 1.

UNITED STATES CIVIL SERVICE EXAMINATION.

The United States Civil Service Commission announces an open competitive examination for mine surgeon, for men only. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in the Bureau of Mines, Pittsburg, Pa., at a salary ranging from \$2400 to \$2700 a year, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

Graduation from a medical school of recognized standing, and at least two years' medical and surgical experience with industrial workers, are prerequisites for consideration for this position. Statements as to education and experience are accepted subject to verification. Applicants must not have reached their forty-fifth birthday on the date of the examination. This examination is open to all men who are citizens of the United States and who meet the requirements. Persons who meet the requirements and desire this examination should at once apply for Forms 304 and 2095, stating the title of the examination for which the forms are desired, to the United States Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Post Office, Boston, Mass.; Philadelphia, Pa.; Atlanta, Ga.; Cincinnati, Ohio; Chicago, Ill.; St. Paul, Minn.; Seattle, Wash.; San Francisco, Cal.; Customhouse, New York, N. Y.; New Orleans, La.; Honolulu, Hawaii; Old Customhouse, St. Louis, Mo.; or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R. No application will be accepted unless properly executed, excluding the medical certificate, and filed with the Commission at Washington, with the material required, prior to the hour of closing business on April 20, 1915.

NOTICES.

THE CUTTER LECTURE.

The Cutter Lecture on Preventive Medicine and Hygiene will be given by Joseph Goldberger, M.D., Surgeon, United States Public Health Service, Washington, D. C., on the subject of "Diet and Pellagra," on Friday, April 2, at the Harvard Medical School, 5 to 6 P.M.

These lectures are given annually under the terms of a bequest from John Clarence Cutter, whose will provided that the lectures so given should be styled the Cutter Lectures on Preventive Medicine, and that they should be delivered in Boston, and be free to the medical profession and the press.

The members of all classes in the Medical School, the medical profession, the press, and others interested, are cordially invited to attend.

BOSTON CITY HOSPITAL ALUMNI ASSOCIATION.

The annual meeting will be held at the Copley-Plaza on Wednesday evening, April 7, at 6.30 o'clock.

Dinner will be served at seven o'clock immediately after the business meeting. Dr. L. F. Woodward will preside.

A luncheon will be served in the hospital library at one o'clock to which members are invited by the Trustees.

WILLIAM H. ROBEY, JR., M.D.,

220 Commonwealth Avenue.

Secretary.

MASSACHUSETTS GENERAL HOSPITAL.

A medical meeting, open to the medical profession, will be held at 12 noon on Monday, April 5, 1915, in the lower amphitheatre of the Out-Patient Department. Entrance on Fruit Street.

1. Exhibition of Cases.
2. Dr. Roger I. Lee. "Splenectomy in Pernicious Anemia."
3. Dr. Oswald H. Robertson. "Urobilin Estimation in the Stools. Its Relation to Hemolysis."
4. Dr. Paul D. White. "Alteration of the Pulse. A Common Clinical Condition."

F. A. WASHBURN, M.D.,

Resident Physician.

SOCIETY NOTICE.

THE SOCIETY OF AMERICAN BACTERIOLOGISTS.—The Council of the Society of American Bacteriologists has decided to hold a special summer meeting in San Francisco, August 3, 4, and 5, 1915. The chairman of the local committee of arrangements is Dr. Wilfred H. Manwaring, Stanford University, California.

APPOINTMENT.

Dr. Philip J. Castleman has been appointed director of the bacteriologic laboratory of the Boston Board of Health, in succession to the late Dr. James J. Scafnell.

RECENT DEATHS.

DR. MICHAEL C. DRENNAN, who died on March 23, at Easton, Pa., was born in 1839. He served as a naval surgeon throughout the civil war and was retired in 1899 with the rank of rear-admiral.

DR. DANIEL J. O'SHEA, who died of pneumonia on March 23 at East Boston, was born there in 1876. He was a graduate of Boston College and studied at the Harvard Medical School. He is survived by his widow, two daughters and one son.

DR. AMOS PATERSON WEBBER, for 32 years a practitioner of New Bedford, Mass., died in that city March 20, aged 55 years. He was a graduate of Bellevue Hospital Medical College in 1883 and was a member of the staff of St. Luke's Hospital. He was a Fellow of The Massachusetts Medical Society and of the American Medical Association, and was prominent in Masonic circles. He is survived by his widow.

BOOKS AND PAMPHLETS RECEIVED.

Discussion on the Milk Supply as a Causal Factor in Relation to Tuberculosis, by Sheridan Deleplaine, M.D., M.Sc. Reprint.

The Boston Medical and Surgical Journal

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Address

THE PATRIOTIC AND HUMANE SERVICE OF THE RED CROSS NURSE.*

BY MISS MABEL T. BOARDMAN, WASHINGTON, D. C.,
*Chairman of the National Relief Board of the
American Red Cross.*

WITH the opening of the Twentieth Century, when in medicine the first thought is for the prevention of disease, and when the motto to be found in so many of our great industrial plants reads "Safety First," war seems an anachronism, an awful absurdity.

To depict the sufferings of the sick and wounded during military conflicts previous to the Crimean War would be but to repeat again and again tales of misery and horror almost beyond belief. Even under modern conditions the words of such an experienced soldier as General Sherman are not too strong to describe them—"War is hell!" It is a hell that only one who has been through the shock and brutality of battle, who has burrowed for months in the trenches with the soldiers, who has walked the interminable wards of suffering in the great military hospitals, who has seen the pitiful destruction and desolation of cities, towns, villages and countryside, and who has witnessed the wretchedness of shivering, half-starved prisoners can comprehend.

In the earlier days, men, though less humane than now, were not altogether brutal, and it is

with special interest that the Red Cross turns back the pages of history to the famous military nursing orders. They, like the Red Cross, sprang from the battlefield, for the Crusades gave them birth. We find at Jerusalem, in the hospital of St. John the Almoner, the cradle of the famous order of the Knights Hospitallers, of St. John of Jerusalem, of Rhodes and of Malta—orders that still exist. Fortunate were the sick and wounded who in those early days fell into the hands of these good knights. A woman's branch founded the hospital of St. Mary Magdalena in the same city, at the head of which was Agnes, a noble Roman matron. These devoted men and women we may claim as ancestors of the Red Cross Nurse. On the breasts of their armor or the shoulder of the long mantles appeared the cross, sometimes of white, sometimes of gold, sometimes of red; sometimes of one form and sometimes of another—but always the cross. These old Knights Hospitallers, though fighting for the Holy Land, never failed to give devoted care to all the sick and wounded, whether Christians or Moslems, thereby manifesting what to-day is the deep pervading spirit of the Red Cross—Neutrality, Humanity. This spirit of humanity broadened the scope of their labors. In the Eighteenth Century we find them aiding the victims of a serious earthquake in Southern Italy and Sicily, as did the Red Cross after the similar great disaster of 1908, in the same region.

Save for the volunteer aid of these military nursing orders, there seems to have been no attempt made to provide any nursing care in time of war. If the battlefield lay near some convent or town, the religious sisterhoods and other

* Delivered at the Graduating Exercises of the Massachusetts General Hospital Training School for Nurses on January 15, 1915.

kindly women of the neighborhood gave what help they could to the wounded within their reach. During the Thirty Years' War and the War of the Fronde, the Sisters of Charity, founded by St. Vincent de Paul, nursed the sufferers and also the victims of famine and pestilence, those two grim handmaidens of the God of War. Here and there through history are meagre stories of the work of patriotic and humane women for the sick and wounded of military conflicts. A thousand years ago after a battle, Haldora of Iceland called to the women of her household, "Let us go and dress the wounds of the warriors, be they friends or foes." Arras, around which lately there has been so much fighting, was the scene of Jeanne Biscot's labors for the sick and wounded in the siege of that same city in 1654. She and her friends established a hospital and continued their services throughout an epidemic.

How little, though, could such occasional, unsystematized effort mitigate the sufferings of the thousands and tens of thousands of the victims of war. Seventeen days after the battle of Leipsic, men were found who had died not from their wounds but from exposure.

FLORENCE NIGHTINGALE.

But new and forceful factors were soon to lead to a remarkable change in conditions. These factors were the telegraph and the press. The majority of those who witnessed the horrors of the battlefield were they who had taken part in the struggle and accepted conditions as the grim and terrible fate of war. Not so, though, was it with those at home, to whom the telegraph through the daily press brought the story of the misery, the agony of some wounded husband, father, brother, son or friend; for they saw in the suffering man of whom they read some dear one of their own.

Less than sixty years ago the cry coming from a war correspondent in the Crimea rang out one morning in *The London Times*: "Are there no devoted women among us able and willing to go forth to minister to the sick and suffering soldiers of the East in the hospitals of Scutari? Are none of the daughters of England at this extreme hour of need ready for such a work of mercy?" What had happened? Great Britain and France had united in 1854 to aid Turkey against Russia. Forty years had passed since Waterloo and deadened the memories of the horrors of war. So, proudly the English fleet with thousands of brave English soldiers had set sail. The nation had hailed with joy the victory of Alma; but close upon the news of victory came the reports of the uncared for sick and wounded men. The whole country was aroused. Mr. Sidney Herbert, then at the head of the War Department, wrote to the one woman in England whom he believed competent to relieve the situation, and while the post was carrying his letter to her, one from her to him offering her services crossed it on the way. When this, her country's call for help, came, before

even it was received in official form, Florence Nightingale responded. The supreme appeal of her life came to her, and she went to the Crimea. With her went thirty-eight nurses, called by "Punch," "The Nightingales," but by Kinglake, "The Angel Band."

This little group reached Scutari November 4, 1854, just before the battle of Inkerman. In the vast barrack hospital lay four miles of human misery, beyond all words to describe. Into these crowded wards and amidst these appalling conditions poured the human debris from the field of Inkerman.

French Sisters and Russian noblewomen were caring for their own soldiers, but at this terrible and chaotic moment Florence Nightingale stands out above all others because of her powers of organization, her ability to bring order out of chaos. Her sympathetic comprehension, her tact and good judgment commanded respect from officials who had seriously doubted the advisability of the presence of women in military hospitals. All the immense labor of organization never blotted out of Miss Nightingale's nature the tender, devoted nurse. At night as she passed through the long wards, her little lamp in her hand, to minister to the suffering men, they kissed her shadow as it fell across their pillows. Longfellow in his poem of St. Filomena says of her:—

"On England's annals, through the long
Hereafter of her speech and song,
That light its rays shall cast
From portals of the past.

"A Lady with a Lamp shall stand
In the great history of the land,
A noble type of good,
Heroic womanhood."

With Florence Nightingale we reach the turning of the ways. In the admiration for her great work for the sick and wounded during the Crimean War we are apt to lose sight of the foundation stone of her remarkable, patriotic and humane service; that stone was the training she had received at Kaiserwerth. There can be no doubt there were thousands of the daughters of England full of the same deep sense of loyalty and love for their country and her suffering soldiers. Love and loyalty must be the inspiration of all such work, but these are of little worth unless by the medium of the trained mind and body they can be made of efficient, helpful service.

Patriotic as were Miss Nightingale's individual labors, they accomplished an even greater work for humanity at large by their inspiration to others. When she was eight years old a boy was born at Geneva who was destined to accomplish great results in extending the efforts she had inaugurated in the hospital of Scutari. Henri Dunant while still a child interested himself in the works of charity and benevolence. The story of Miss Nightingale's work in the Crimean War had made a deep impression upon

him. In 1859, when northern Italy, aided by the French, fought to throw off the yoke of Austrian supremacy, occurred one of the great battles of history, the battle of Solferino; 40,000 killed and wounded was its deadly harvest.

Dunant, traveling simply as a tourist, witnessed the terrible suffering of the uncare for wounded. "The sun of the 25th of June, 1859, rose on one of the most frightful spectacles that the most vivid imagination could conceive," he later wrote of this battlefield. With the aid of the good women of the neighboring town of Castiglione, he organized a primitive relief corps. The wretched men—French, Italian and Austrian—were gathered in rough commissary wagons and carried to the small city, which itself soon became one great hospital. No organization of the Red Cross with its corps of trained nurses then existed to act as a medical reserve force, and even an attempt to cope with so much misery seemed hopeless. The wounded were dying of hunger for lack of those to minister to them. There were not enough even untrained hands to bandage the ghastly wounds. Cries and appeals for help filled the air and remained unanswered. Dunant and the good women did what they could; the latter, moving among their Austrian enemies, murmured, "Tutti fratelli" (all are brothers). Read scene after scene as depicted in Dunant's "Souvenir de Solferino" and wonder if nations must continue to settle their differences or protect their so-called honor at such a price as this. Dunant asks, "Would it not be possible to found and organize in all civilized countries permanent societies of volunteers which in time of war would render succor to the wounded, without distinction of nationality?"

Here had the Treaty of Geneva its inception, and the spirit of the Red Cross began to quicken into life.

Dunant followed up the success of his pamphlet by visiting the various countries of Europe, and succeeded in interesting a large number of prominent, notably royal, persons in his plan; first, for the acceptance of a treaty to protect those caring for the sick and wounded, and then in the organization of the volunteer aid societies.

The proposal to adopt a common and uniform flag to mark hospital formations was a welcome suggestion, for at this time each country had a different flag for its medical service. In Austria it was white, in France red, in Spain yellow, and in other countries black or green. The soldiers knew only the hospital flag of their own country, and were ignorant of the others.

In 1864 the Swiss Government addressed an invitation to 25 sovereign states to send representatives to a diplomatic convention to be held that year in August. Many of the military representatives at this convention were incredulous as to the possibility of securing the adoption of a treaty based on the recommendation of a previous conference. It was doubtless due to the

assurance of one of the American delegates, Mr. Charles S. P. Bowles, European agent of the U. S. Sanitary Commission, that many of the proposed provisions were similar to orders issued to our armies and which had stood the practical test of active warfare, that the Treaty was finally adopted. The Geneva, or, as it is sometimes called, the Red Cross Treaty, provides for protection for hospital formations and their personnel in time of war. Out of compliment to Switzerland, the Swiss flag with its colors reversed—a red cross on a white ground—was adopted as the great world-wide emblem of neutrality and humanity. As the noble work of Florence Nightingale had been the inspiration for Henri Dunant's splendid achievement, so had the practical labors of our own great Sanitary Commission helped to lay the foundations for the Treaty of Geneva.

In order to carry out the provisions for mitigating the suffering of the sick and wounded, the Convention passed resolutions recommending that in every country there should be a committee whose duty it would be in time of war to co-operate by all measures in its power with the medical services of the army. Among the proposed duties of such committees was the training and instruction of volunteer nurses to co-operate with the military medical authorities for active duty. Thus the ages have taught us the need for the patriotic and humane services of the Red Cross nurse. Not a Red Cross Society exists that does not recognize this necessity. Were there time, I should like to tell you something of what the foreign societies have done to provide this service. That there is room for improvement in many countries, in fact, in all countries, there can be little doubt. If through the medium of the Red Cross Nursing Departments a higher and more uniform standard of nursing can eventually be secured, a very important and humane service for all mankind will result.

One incident I may venture to cite to show how the need for the Red Cross nurse in war has benefited a nation in times of peace. In 1884, when the Japanese Red Cross was organized, there were no trained nurses in Japan, and there existed there a very strong prejudice against women of respectable character undertaking such a profession, but the Red Cross set its seal of patriotism and humanity upon the proposal. It instituted a training school for its nurses, and to overcome this popular prejudice, women of high rank took the required course. As a result, Japan has several thousand well trained nurses, not only ready for war or disaster, but for the daily service for the sick in the hospitals and in the homes. A group of these Japanese Red Cross nurses, with surgeons of the Society, has just passed through New York on their way to Europe to help care for the wounded there.

As part of the organization of the American Red Cross, there exists the National Committee on Red Cross Nursing Service. The chairman is Miss Jane A. Delano, to whom we are indebted

for a most efficient system; and many other prominent nurses constitute its membership. For enrollment in this service the highest standard ever adopted for nursing was established.

This Committee, with some 114 state and local committees, has enrolled over 5,500 of the best trained nurses in the country for active duty in war or disaster. No nurse is required to leave a patient, but in case of war or disaster if free to go she is expected to respond to the call for duty in her own country. For foreign service only such of our Red Cross nurses as desire to volunteer are sent. To the credit of our nurses, it is a great pleasure to report that no call has ever been made in vain; more nurses than required have always responded. Above the badges of their enrollment, the service bars of many of them testify to the fine sense of duty that inspires them. After cyclones at Hattiesburg and Omaha they cared for the injured. Scattered throughout the devastated flood districts of Ohio and the neighboring states, they not only nursed the sick, but they proved of incalculable value to the health authorities in the prevention of epidemics by their inspection and their instructions to the people. Promptly in the field, they donned rubber boots, waded through mud, and climbed over debris to reach those who needed their aid. At night they slept on a mattress on the floor or spent watchful waiting hours at remote stations to be ready for a sudden call.

Nor were the results of their labors to end with the relief, for some of the communities they aided, realizing the great help to the sick and their services to the health of the entire community, created visiting nurse associations to retain permanently the temporary benefit they had received.

After the Salem fire, thirty of our nurses were on active duty in the camps, the Maternity Hospital, the Contagious Hospital and headquarters. In the large camp at Forest River Park they mothered the whole community, looked out for the babies, gave lessons in their proper care, made many a wise suggestion about the children, inspected daily the entire camp; not only aiding in maintaining its health but leaving much practical information as the legacy of their work.

At Gettysburg and other veteran encampments, at inaugural and various other functions and parades all over the country they have maintained first aid stations.

Today amidst all the agonies caused by modern warfare, 150 of our Red Cross nurses are devoting their time, their energies and their efficient training to alleviating some of this appalling misery and distress. Our nurses may justly feel proud of their profession when they read the reports that come to the Red Cross of this work. Lady Paget writes that Queen Mary visited the Paignton Hospital, where our surgeons and nurses are stationed in England, and expressed her great pleasure over the efficient work they are doing there. Mrs. Whitelaw Reid, who has

been long interested in nurses' work, writes, "I am delighted with the way Paignton is run." From Pau the English wife of a French officer says in a letter to Mrs. Herrick, "The American Hospital is incomparably the best here, the only one where there is really trained nursing." And the wife of an English physician there says in a letter to an American niece: "The work of the American surgeons and nurses is beyond all praise. We cannot believe the other units can be as good as those sent here." The units sent to Germany each have a hospital near the Polish border. Mrs. Gerard, the wife of our Ambassador in Berlin, writes that the German Red Cross officials report they are doing wonderfully fine service and the seriously wounded are placed in their care. In Austria it is the same, one unit at Budapest and the other at Vienna. At Kiev, in Russia, the two units have a large hospital of 400 beds in their charge. When Belgrade fell into Austrian hands, the surgeon director of our unit there took under its protection the other hospitals of the city and their Servian personnel.

In the quiet efficiency of our Nursing Service, not only is suffering being alleviated, but, perhaps unconsciously, a missionary work is being accomplished. The services of Miss Helen Scott Hay, who is with the units in Russia, had been given by the American Red Cross to the Queen of Bulgaria for four years to organize a nurses' training school at Sofia on American lines. The sudden breaking out of the war has postponed this plan. Miss Delano, the chairman of our Nursing Service Committee, has been asked to supervise the training of a Greek nurse and one from the Philippines in this country. May this not be the beginning of a universal Red Cross nursing standard?

Nor have we yet reached the limit of the American Red Cross Nurses' patriotic and humane work. The Nursing Committee has organized classes for the instruction in elementary hygiene and home care of the sick, conducted by the Red Cross nurses, which will do much to improve the health conditions among our people throughout the country. A special department is devoted to the organization and training of a corps of town and county nurses, thereby extending the valuable services of the visiting nurse to small communities. The nurses of this corps must not only come up to the same high standards required for Red Cross nurses, but must in addition have taken at least a four-months' special course to fit them for their work.

Thus in the daily life or amidst the distress and destruction of great disasters or back of the tumult of the battle line the Red Cross nurse carries on her patriotic and humane service for her country and her fellowmen. This service must be a trained and organized service. All the sentiment in the world is of little worth unless training and organization can give this sentiment practical helpful expression. Yet through the practical and efficiently trained organization

must ever breathe the living spirit of the Red Cross.

"Some day," writes Charles Wagner, "the Red Cross will triumph over the cannon. The future belongs to the nurse, to the little grey sister, to all helpful powers, however humble; for two allies are theirs, suffering humanity and the merciful God."

Original Articles.

A REPORT ON SOME CASES OF PERINEAL PROSTATECTOMY.*

By F. G. BALCH, M.D., BOSTON.

IN this paper I do not intend to discuss at length the merits of the perineal or supra-pubic operation but merely to give the results and a few facts in twenty-eight cases which I have operated upon at the Massachusetts General Hospital in the last two years.

I have included only my hospital cases in this list because they are the only ones of which I have accurate records, and because they are the only considerable series where spinal anesthesia was used. I have usually used ether in my private cases. My impression is that they would number about the same as the hospital list, and the mortality has been the same, that is, two cases out of about thirty.

One of my private cases, done before renal function was generally studied, and done by the supra-pubic method, probably would not have been lost by the perineal route. In the other fatal case, an intensely nervous man, I let myself be persuaded, because he had so much pain, that I had not removed the whole of the prostate. I opened up the wound again and he died within twenty-four hours. Temperature and pulse had both been normal up to the time of the second operation, and I found nothing to remedy.

In my hospital cases I have had two deaths, one in the first year and one in the second year. One of these deaths was from peritonitis caused by perforation of the sigmoid, probably by a rectal tube. The patient had been up and about for several days and death was in no way due to the operation. The other case was a Jew, seventy-five years old. He was more or less maniacal before the operation, pulled out his catheter, etc. Only one renal function test was done on him. As this gave a fair result I went ahead with the operation without doing a second test. I always intend to do two tests now. He had myocarditis, chronic bronchitis and emphysema. He also had cystitis and stone in the bladder. Not a good operative risk!

In the first year four cases of prostatic hyper-

trophy which were referred to me died without operation. They were never in a condition to warrant an attempt at prostatectomy. During the second year one case was not operated upon. He was a man of seventy-three who came in with acute retention. His renal function, done four times during his stay of over four weeks in the hospital, showed an appearance time of over forty-five minutes, and less than five per cent. excreted in one hour. At times his mental condition was poor, and he had eczema. At his own request he was discharged with instructions about self-catheterization.

Almost all the pathological reports showed glandular hypertrophy. In one case only was there adeno-carcinoma. The average age was sixty-eight, the youngest being about fifty-five and the oldest eighty.

Two cases had vesical calculi as a complication at the time of prostatectomy. One case also had a cancer of the breast which I removed under local anesthesia seven days after the prostatectomy. This man spent a long time in the hospital as it was almost impossible to get his renal function up to where I considered it possible to operate. The man was almost entirely blind, and had epididymitis eight days before operation and twelve days afterward.

Anesthesia was produced by intraspinal tropacocain except in four cases where ether was used. I had no untoward results from the anesthesia, whether general or local. In many ways spinal anesthesia is an ideal one in these cases. The patients are old men and it is well to avoid irritation of the bronchial mucous membrane. Again, they do not have to miss their breakfasts, can drink water immediately after operation, and usually are ready to eat in a few hours. The fact that this class of patients can drink water immediately after operation is a great advantage as old men who often have bad kidneys are altogether too liable to diminished renal output after ether anesthesia. It seems most unwise, after carefully keeping these patients on constant drainage for perhaps a week or ten days before operation to run the risk of decreasing the amount of urine just by means of general anesthesia.

In men with very atheromatous vessels the blood pressure drops very markedly in most cases, and there may be vomiting and what looks like severe shock. In this series of cases this was not seen.

I do not hesitate to use ether if for any reason spinal anesthesia is not available, in fact I have used it quite generally in my private cases.

In a general way the cases which stayed in for the longest time before operation, seemed to get out sooner than those that came through the accident room. This was not always the case. One old man of eighty came to the accident room with acute retention and was discharged with the wound perfectly healed twenty-five days after operation. The average stay in the hospital was twenty-eight days. Where there

*Read at a meeting of the Boston Surgical Society, Incorporated, February 1, 1915.

were no complications the average was slightly less.

Drainage tubes were removed usually on the second day. Patients were up in a chair from one to four days after operation, the majority being up in two days. Urine came through the penis in from two to fourteen days, usually on the fifth day. There was no trouble with urinary fistulae. In one case there was retention on the eighth day after operation requiring drainage for six days. In two cases, one on the third and one on the fourth day, the tube had to be put in again for a few days. In three cases there was epididymitis. One case had pyelitis on the fourteenth day.

In all these cases the median, perineal prostatectomy was done using the V incision with the point front. I prefer this method of approach to the central incision because I believe that by cutting off the raphe and pulling the bulb forward I can get about one half an inch additional distance that my finger can be inserted, and this is a very valuable half inch in some cases. I make no wide dissection of the base of the bladder but open the membranous urethra on a sound, and, pushing a finger forward through the prostatic urethra into the bladder, examine the prostate thoroughly. I then break through on the floor of the prostatic urethra, enucleating first the lobe on one side and then the lobe on the other. There is little trouble in getting the whole of the prostate. Counter pressure from above helps in some cases. Twice I have had a third lobe about the size of a horsechestnut drop back into the bladder. It is easily secured, however, with stone forceps. Small stones can also be grasped without trouble.

In the case of a very large prostate, it is sometimes necessary to bring it out piecemeal as the hole is not large enough to deliver a very large tumor. The operation is almost identically the same as the supra-pubic procedure, as far as enucleating the prostate goes. You simply break through the side of the urethra and shell it out.

Hemorrhage has been a negligible factor in all my cases. I put the double Eynard tube into the bladder and fasten it with a suture into the skin, holding it over into one angle of the V incision. I then bring the raphe into position again with buried chromic catgut sutures. Usually I put either a cigarette wick or a piece of rubber tissue into the other angle of the incision whence I removed the prostate.

These patients are put on constant irrigation after returning to the ward, and this is kept up from twelve to twenty-four hours, according to the amount of staining. The tube is usually taken out after twenty-four hours, the wick being removed a few hours before the tube. From then on, in the majority of cases, no instrument is passed into the urethra. In a few cases my house officers have put back the drainage for a few days, and in one case I had to pass a sound for the cure of a leak in the perineum.

Perhaps the most prominent advantage in these cases as I have seen them has been the lack of hemorrhage. There has been no necessity for any packing, rubber balloon or anything else inside the bladder to stop bleeding. I have not met with the supposed disadvantages of the perineal operation. I have given up the wide dissection of the Young operation, and the operative wound is hardly more extensive than with an external urethrotomy. Furthermore, there is no more danger of wounding the rectum than there is in the supra-pubic operation, nor are you any nearer to anatomical structures which you have to avoid injuring.

It is easy to remove the so-called median lobe, and, except in the case of a very large prostate, the gland can be removed entire. The same holds true of stones.

Persistent urinary fistulae which we have heard so much about, have not developed. The longest period of leakage was thirty-one days. Apparently a fold of mucous membrane made a valve obstructing the distal urethra. A sound was passed once, whereupon the leakage entirely disappeared.

Epididymitis occurs occasionally, but so it does in the supra-pubic operation. It is a simple proposition to do a vasectomy if anyone wants to make sure to avoid this complication.

Incontinence has not occurred in this series of cases, though one case, an old man of eighty-one, wears a urinal because he has some frequency and finds it more convenient than having to time his movements so as to empty his bladder when necessary.

A preliminary cystoscopy is most important for, of course, cases with diverticula, which need operation, and bladder tumors must be approached by the supra-pubic route.

ON THE FIXATION OF FRACTURED BONES IN INFANTS AND YOUNG CHILDREN.*

BY E. H. BRADFORD, M.D., BOSTON,
AND
ROBERT SOUTTER, M.D., BOSTON.

THE difficulties in the treatment of fractures of the thigh in adults are well known. It is not always possible to keep the fragments in exact position or to prevent some displacement from muscular action and to fix the limb absolutely. These difficulties are much increased where fractures of the thigh occur in infants. The action of the muscles is not as important a factor in infants as it is in adults, but owing to the small size of the bones, it is difficult to keep the fragments in place. This is especially true in the fractures of the upper third of the thigh. The

* Read at a meeting of the Boston Surgical Society, Incorporated, February 1, 1915.

different methods of clamping which have proved of service in many cases in fractures in adults are inapplicable to fractures in infants.

A simple method which proved of service in a two months' old infant deserves attention on account of its ready applicability.

The mechanical problem in attempting to steady two broken fragments of bone is not a difficult one and consists in an endeavor to fix both fragments firmly to a strong lateral, or side support, which will secure fixation in a desired alignment until solid union has taken place. The healing process can be confidently relied upon to occur under ordinary circumstances. The length of the side supports by which the fragments are held, manifestly is of importance, *i.e.* the longer the supports the better the fixation. That is, in case a long bone is broken, a clamp which is but half an inch long does not hold as firmly as one one-third or one-half the length of the broken bone. The conditions can be met in the following way: On two sides of the broken bone supports are fitted to which the fragments are fastened, reaching a considerable distance above and below the point of solution of continuity. This can be done by means which will not demand extensive dissection, which involves tissue trauma and the attendant muscular and tissue stiffening, prolonging the after treatment, by such a time as is needed to restore the tissues torn in dissection to normal suppleness.

The method has been employed in two instances, one in the fracture of the upper arm of a young child, and the other in a fractured femur in a two months' old baby.

By means of a long bone drill, with an eye at the point, the broken bone was pierced and strong 30-day catgut threads passed through the eye of the needle thrust through the skin. On withdrawing the needle the catgut is pulled through the bone. No dissection is necessary as the bone drill is readily thrust through the skin down to the bone. Palpation and the skiagram were sufficient guides for the proper placing of the catgut in the fragments of the bone. Any needed number of catgut cords can be passed. The skin is protected by a layer of fat-free leather, which will soften when wet and harden rapidly into stiffness. This leather soaked in alcohol is sterilized, and placed around the limb and the catgut threads passed through it. Small wood coaptation splints are then placed in desired places pressing on the side of the limb, one to check a forward and backward movement of the fragments, and another to prevent sideplay.

Traction is then applied to the limb, the coaptation splints held in position, the catgut threads passed through the fractured bone are tied to the coaptation wood strips, thus firmly lashing the fragments in proper position to a firm splint; over the whole a second layer of alcohol softened leather can be placed,

held by a firm bandage, and the limb secured in a wire splint. The leather softened in alcohol hardens quickly on the evaporation of the alcohol and in a short time the fractured limb was held in a firm leather splint firmly. The position can at any time be determined by skiagram. In the cases (young children) in which the method was used the leather splints and wood side splints were removed in four weeks, the catgut having softened and the fracture being firmly healed. The treatment involved no more complication than in the simple method formerly used, while a proper alignment of the fragments was secured without delaying the functional activity of the limb.

The method can not be regarded as one of fixation by clamps, but as one of fixation through carefully applied and secured coaptative splints. Though this method is especially applicable to the treatment of fractures in infants, it may be available in some fractures in adults.

Beside the proper apposition of the fragments it is necessary that the alignment should be kept during the healing of the bone. This is even more important than the exact apposition of the broken ends, and is of especial importance where the fracture is near the joints, especially the hip and the shoulder. The upper part of the femur tends to tilt upward, being pulled by the psoas and iliacus tendon. It is also pulled outward by the gluteus. Traction will only partly counteract this tendency and even if it were advisable to cut down from the bone, in infants and young children, screws holding clamps cannot be used for evident reasons. It is therefore necessary to place the limb in such a position that the lower fragment follows the line of the upper fragment; for this the ordinary apparatus, serviceable in adult fractures, is unsatisfactory.

Another consideration of importance is the need of securing the limb with as little bandaging as possible. The injury from interference with the circulation from prolonged bandaging is seen in adults. Atrophy of tissues, and degeneration of muscles are well known to occur from prolonged pressure. In addition to this there is, as has been proved by x-ray pictures, a change in the tissue of the bones in long bandaged limbs, which cannot be conducive to rapid healing. Plaster bandages are to be avoided as much as possible in infants and young children for this reason, and also from the fact that frequent inspection of the injured limb is important to be sure of proper position of fragments not easily held in plump and restless babies. Although it is possible to provide cut plaster bandages, furnishing a lid which can be removed when necessary, this in young children is met with some difficulty on account of the small bandages, which are liable to become soft and friable.

In joint fractures proper, *i.e.* in fractures in

the close vicinity and into the joint, present in young children complications due to a possible displacement of the epiphysis, a condition which is not always easily recognized, either by skiagraph or palpation.

X-rays passing through cartilaginous tissues fail to indicate the true condition of fragments, which, being small, are not easily recognized by the surgeon's sense of touch. While in adults these difficulties may be met by cutting down upon the injured part, securing the fragments as far as possible in a normal position, in infants and in young children there are manifest objections to this procedure. In fault of this, no method of clamping as suggested for fractures of the shaft being possible, the only recourse lies in all attempts to place the limb in such a position as will be best adapted to the restoration of a normal function. These may vary with the different joints, viz. the hip, shoulder, knee and ankle.

Hip joint fractures proper in very young children may be, in fact, epiphyseal tears, or separation of epiphysis, and can best be treated by means of an abductor traction splint used in the treatment of hip disease. It is desirable to prevent the development of a coxa vara, upward riding of the great trochanter, and an adducted limb. Resulting stiffness at the hip joint is best combated by efficient traction, which checks shortened cicatrization of capsule and ligaments.

In shoulder injuries, where it is desirable to secure as good function as possible, the humerus should be held abducted at the elbow, strongly flexed.

Joint and epiphyseal fractures at the knee require care to prevent backward displacement of the lower fragment if the hamstrings are kept on the stretch. This can be best accomplished by keeping the limb in a slightly flexed position at the knee, after carefully placing the fragments into as suitable position as possible by manipulation, with retention in the position of election by suitable and carefully adjusted and carefully watched pressure. This fracture needs constant inspection.

Joint fractures and epiphyseal separations near the wrist and ankle in children need no especial comment as the principles of treatment do not differ from that in adults. They need, however, frequent inspection and less prolonged fixation than is usually necessary in adults.

The treatment of joint fractures in young children should never be routine treatment, if the best results are to be obtained. Frequent inspection of the limb is needed, with at times frequent re-adjustment of pressure. It is for this reason that plaster of Paris bandages are less serviceable in children than in adults, especially in some fractures and injuries near joints.

The most serviceable appliances will be found to be ready-made wire splints, variations upon the well-known Thomas splints, which may be said to consist of a wire ring encircling the up-

per part of the limb, connected with two wire rods extending below, bent according to the case and united below.

The convenience of plaster of Paris is so great that surgeons are apt to rely upon this exclusively in the treatment of fractures, leaving the details of management of these cases to well trained assistants, and in large clinics this is usually the most practical way of the management of fracture cases. Complicated apparatus needs special training, which is not always obtainable, but simple apparatus, such as is applied by any well trained assistant, although supervision and direction will be necessary: The variations in size of these splints can be met by keeping on hand three or four sizes, as is necessary in the usual splints used for fractures of the upper extremity.

BORDER-LINE CASES OF MENTAL DEFECT, WITH SPECIAL REFERENCE TO HYSTERICAL SYMPTOMS.*

BY CHESTER C. BECKLEY, M.D., LANCASTER, MASS.

As our knowledge of mental diseases and defects increases and as we gain more skill in recognizing the symptoms to which they give rise, we are able to classify conditions which have not been understood heretofore. There remain borderline-cases which it is difficult to classify, or if they can be classified, for whom it is difficult or impossible to secure suitable treatment. Many times the more noticeable symptoms are those of the hysterical, but careful study reveals a mental defect, a beginning or mild psychosis as an explanation of the person's unusual behavior.

My experience has been gained at the Lancaster State Industrial School for Girls, to which delinquent girls under 17 years of age are sentenced by the courts. Under the present system, few, if any, are so sentenced until other methods have failed: probation by the court, oversight by the Society for Prevention of Cruelty to Children, the State Board of Charity, private charities, etc. Many have been examined by an alienist, who frequently reports that the girl is not normal but that the mental condition does not warrant her being sent to a feeble-minded school or to a state hospital. Frequently girls are sent to Lancaster who admittedly should go to a feeble-minded school, but cannot be received on account of lack of room. Many of the normal girls do well on probation or in the care of some society, and consequently never reach us. We have, therefore, at the Lancaster School, a large number of mentally abnormal girls, many of whom are high-grade defectives. The study of these border-line cases is most interesting. Their

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aggerated reaction to outside stimuli, to pain and to mental changes, gives us, I believe, an insight into the same reaction, but to a less degree, in more normal people.

We have been able to secure exhaustive family histories in many cases, nearly all of which show bad inheritance together with a bad environment. In some instances the picture is so dark one wonders at there being such families in existence. The lack of discipline and the means which the child takes to secure freedom to gratify the desires of the moment have to be considered in the final analysis. It is easy to understand how a neurotic, wilful, disobedient child with a lack of self-control, who cannot appreciate the penalty she will have to pay for her transgressions, soon develops into an hysterical offender, especially during adolescence. Dubois says, "An hysterical person is an actor who has lost his head and plays his part, imagining that it is real." In discussing a tantrum or a convulsive seizure with a defective girl, I have been told frequently that in the beginning she was trying to gain some end, later she could not help it.

Doctor Savill in his "Lectures on Hysteria" has the following to say of the hysterical person: "These patients, even in ordinary circumstances, are easily roused to violent expressions of feeling, to hasty judgments, to impulsive actions, and to passionate exhibitions of various kinds. One moment they are angry because a thing is going to be done; the next moment they may be cross because it has not been done. Sydenham in 1680 described this mental instability well. 'All is caprice. They love without measure those whom they will soon hate without reason. Now they will do this, now that, ever proceeding from their purpose.' Briquet in 1859 went more on the emotional instability as being the chief feature of the hysterical mind, and without doubt it is a very striking feature. But in typical cases there is more or less instability of all the mental faculties—sensation, perception, memory, imagination, feelings and emotion, ideation and connotation, attention, judgment and will. The will power is variable and apparently insufficient to control the unruly thoughts, acts and emotions; but it has often seemed to me that this inefficiency is sometimes more apparent than real, by reason of the strength and unruliness of the emotions which the will has to control. All the faculties vary from time to time and thus again it happens that the hysterical mind is what we call an unbalanced mind."

"There is about all their vital phenomena, whether healthy or morbid, a variable or paroxysmal character, a change from day to day which seems quite peculiar to them. Whether ill or well, this is noticeable; and if suffering from some intercurrent malady, one day the patient is so ill as to be hardly able to move, the next day she may be up and about, although the malady has undergone no change. This sometimes brings them undeserved blame."

"Individually these qualities may not be very distinctive, but collectively—the impulsiveness, the emotional instability, the ready flushing, the excitable reflexes, and the variability of the vital phenomena—they are so far distinctive as to enable a careful observer to recognize the hysterical diathesis in the female sex."

I have quoted the above at length as it gives a clear description of a class of cases that are troublesome in an institution and that are unmanageable in the home. Most of the more marked cases of this type that I have seen are mentally defective, and a few, on account of their lack of control and the completeness with which they are mastered by their ungovernable temper, become dangerous to others and should, I believe, be treated as insane.

Malingering, simulation and the production of an abnormal physical state by some means which must cause physical distress, when there is nothing or so little to be accomplished that the discomfort is out of all proportion to any possible gain, seems to me to indicate an abnormal mental state. Threats of, and ineffectual attempts at, suicide, are common with the psychopath. I know of only two cases in which attempted suicide was successful. The first was an apparently normal girl, who had never threatened self-destruction. In going over the case afterwards, there was nothing to be found that might have led those in charge to suspect such an attempt. The other, a syphilitic girl, had had violent outbreaks and had threatened to kill others as well as herself, was probably insane, but we were unable to determine a psychosis. Many attempts have been frustrated, some of such a nature as to leave no doubt that they were not intended to be successful, others apparently so nearly successful as to be regarded as most serious.

Somatic influences play an important part. The large number of physical defects found in mental defectives and psychopaths is astonishing to one who has not had the opportunity of examining a large number. The list includes ear, eye, nose and throat defects, defects of the circulatory system, including functional and pathological heart conditions and vaso-motor instability, defects of the gastro-intestinal tract and the genito-urinary system, skin diseases, weak and fallen arches, asthma, glandular enlargements, poor teeth, poor nutrition, lack of resistance against infections, etc. Menstrual abnormalities are frequent, incontinence common. I have wondered if the internal secretions were not oftentimes out of balance. Many of the girls have enlarged thyroid glands, but as there is a physiological increase in the size of this gland during adolescence, and as I have seen a number of abnormally large thyroids in public school girls, who are otherwise apparently normal, I should hesitate to say that this was more frequent in the class of cases under discussion, without definite data.

I have been much interested in the theory

that vaso-motor defects may be the cause of hysterical manifestations. I have often been able to observe vaso-motor changes preceding and during an attack and have been able to get a history showing this defect in many others. The feeling of cold or heat on the surface of the body, the flushing or pallor of the skin which often precedes or accompanies an attack is very suggestive. Mottling of the skin has been so well marked in a few cases that I have had to watch the condition come and go in order to satisfy myself that the patient did not have a rash. The most profound vaso-motor paralysis I ever observed was in a girl who practiced self-abuse excessively, which I considered to be the cause. Whether or not we consider sexual trauma to be a cause of hysteria in the average person, it seems doubtful if it can be of great significance etiologically in a girl who will discuss her sexual indiscretions as freely and with apparently as little feeling as she talks about her school work.

The physical symptoms of which these girls complain are often most confusing. Many times slight discomforts and pains are magnified until they assume the proportion of a serious condition. Past illnesses are remembered and the patient apparently suffers as much from a second and a third attack, for which there is no pathological cause, as from the original illness. I have seen girls suffer from repeated attacks simulating appendicitis after the appendix has been removed. A girl repeatedly comes to the hospital, bent over, crying from a pain in her left side, to be cured in five minutes by being put to bed with a hot-water bottle. A history of the case shows that she had convulsive attacks several years ago, later, cyclic vomiting. At one time a girl would come to the hospital every few weeks with a febrile attack for which we could not account. The matron watched her very carefully and found that if she did not get an answer to a letter she had written within a certain time she would begin to worry, stop eating, and would have to come to the hospital. Twice she came to the hospital with a temperature over 101° as predicted after the letter was sent and no answer received. I asked for a report on a girl who had repeated attacks of acetoneuria and in reply got a statement that at certain times she would begin to worry, lose flesh rapidly, and after a few days have to go to the hospital. It often happens that a girl who has been menstruating regularly up to the time of coming to the school will not menstruate for months. At times the bowel functions seem to be in abeyance for days and occasionally the kidneys do not secrete for three or four days.

In selecting the following cases to report, I have taken those which best illustrate several different types that, in my opinion, need custodial care, and for which, with one exception, we have been unable to secure permanent treatment in a suitable institution. The first four cases are included to show the physical symp-

toms of which the defective delinquent may complain. If I have not given sufficient data to demonstrate the defect it is because I wished to keep the record within reasonable bounds, not because the material is lacking. One case, No. 6, is included to show the development of a psychosis in a mentally defective person.

CASE 1. A. M. Born August, 1892. A foundling, adopted from the State Board of Charity. Character of home, good. Her mother by adoption, respectable, has but little force of character. Mother's second husband died when Alice was thirteen years of age, since which time Alice has been unmanageable. Alice associated with low boys and girls. Worked for a short time in four places. Ran away from home and hired a room to which she brought men.

Committed to Lancaster in May, 1907. Examination showed eye and ear defects. She was infected with syphilis and gonorrhea. Has had diphtheria and appendicitis. Reflexes normal. At the School, was always in trouble; no violent outbreaks or tantrums, but always doing foolish things and getting the other girls into trouble. Dared a girl to eat the eyes out of a frozen cod fish and when the dare was not taken, did it herself. Would get food out of the kitchen and eat an enormous quantity. Stuck needles into herself until we refused to cut them out. At one time claimed to have got glass in one eye; we picked out pieces of glass for several days. We finally told her that if she put any more glass into her eyes it might stay. At another time she said her bowels had not moved for two or three weeks. More recently has complained of "blind staggers." Has fainted.

October, 1911, was given neo-salvarsan at the Boston Dispensary. Following this her arm and hand were swollen and gave her a great deal of pain for six or seven weeks. Examination and x-ray negative. There were suspicious marks above the elbow. She was accused of cording her arm. This she denied, but soon after told of falling out of a chair and striking on her elbow, after which she felt "pins and needles" in her hand. The hand got blue and the swelling subsided—recovery immediate. June, 1913, was given neo-salvarsan intravenously. She became delirious, then unconscious, these states alternating for several days. There was no secretion from the kidneys for thirty-six hours. The nurse reported that while in a hot pack her breathing stopped and her pulse became very weak.

At another time she developed some trouble with one knee—pain, redness and stiffness, and at times slight cartilaginous crepitation. The redness looked very superficial as if it had been encouraged. This lasted for several months; part of the time she was in bed.

Occasionally her work was satisfactory, but most of the time she was not interested in it and needed constant supervision. She was easily discouraged, impressionable, and was always looking for excitement.

When placed on parole she did not do well. In one place she left the baby alone, took clothing and disappeared. Was found living with a boy. After this, several unsuccessful trials. Was arrested for larceny. When she became twenty-one she went to live with a man whom she had married at some previous time, and of whom she had claimed to be very fond, but she soon tired of him and went to

live with another man. When last heard of, was at the State Infirmary awaiting confinement.

Diagnosis. Although she passed the Binet test for fifteen years, I believe she is a defective delinquent and should have custodial care. There is a probability of cerebral syphilis and the knee may have been organic.

CASE 2. E. B. American parentage. Born November, 1893. Committed Dec., 1908. A police officer reports: "The father is poor stuff and has been on our books and graced our docks many times for drunkenness and non-support. Husband and wife living apart. They move frequently, either the house does not suit the B's or the B's do not suit the landlord. The mother is in poor health; her character has suffered on account of her fondness for men. E's sister is noted for her indifference to her marriage vows. The home is very unattractive and on the whole E. cannot be good and nothing can be expected of her people to aid her future."

A report from the Associated Charities: "From first to last the church has done a great deal for Mrs. B. We have dealt with three families related to her; very poor stock, epileptic, feeble-minded and drunkards." The mother's sister, who lives with the B's, is a notorious character.

Before coming to the Lancaster School E. had lived a disreputable life—a sexual offender, drank, smoked and probably took drugs. As it is the influence which her mental state had over her heart's action which I wish to bring out, I will not take time to go into her mental history, excepting to state that she is a high-grade mental defective, and is very susceptible to her surroundings. She passed the Binet test for eleven and four-fifths years when she was seventeen years old. She can and does do her work very well when interested in it. When not interested, her work is far from satisfactory and she complains of heart pains, weakness, dizziness.

She had rheumatic fever in August and again in December, 1907. Chorea, lasting one month, the same year. Has had follicular tonsillitis, measles, and scarlet fever. She has a double mitral lesion, an hypertrophied heart and evidence of kidney involvement. After coming to Lancaster she did not menstruate for six months. She complained a great deal of pain in the region of her heart, shortness of breath and dizziness. June, 1910, she was in the hospital suffering from failing compensation. There was considerable cyanosis, dyspnea, and a small irregular pulse. The heart, which was very large at best, seemed to be increasing in size. No treatment was of any use. The condition seemed so serious that I advised the authorities to allow her to go home provided she should improve sufficiently to be able to stand the journey. She was told that she could go home when she got better. The result was that within a few days she was sitting up, apparently as well as ever. The authorities were suspicious that I had over-estimated the seriousness of the case and withdrew their permission. Within a week or ten days she was back in bed with all her old symptoms. Her condition became so serious that she was again placed on the dangerous list. This time I told her, myself, that if she got better she should surely go home. The result was nearly as prompt as before, and she was allowed to go.

She remained at home for a while, then ran away and lived in a very dissolute way. Was returned to the School. She did not have as bad attacks after this, but was not able to do any work. Was in bed

a great deal. She was sent to the State Infirmary for treatment. She improved and was returned to Lancaster. She was better for a time, then became discouraged and lost all she had gained. We took her into the hospital and after a short time began to have her help in the kitchen. This seemed to interest her and soon she was doing as much as any body and continued to work until she became of age and left the School. I believe the care which she received at the house in which she lived was as good as that at the hospital, but she did not like it. No treatment with drugs seemed to relieve her to any great extent, and at times heart stimulants made the pain worse.

Remarks. If I had not had this experience and watched this case for several years I should not have believed that the mental state could affect the action of a diseased heart as it apparently did in this case. It has made me hesitate to join in the criticism which we frequently hear of physicians who, from the subsequent outcome of the case, have apparently overestimated the seriousness of a prisoner's physical condition, thus securing his release.

CASE 3. E. B. French Canadian. Born May, 1895. Father alcoholic, abusive, sex offender, has court record. Mother tubercular. Brother and sister said to be "unusually smart," have but little respect for parents. A brother arrested for breaking and entering. Emma said to be stubborn and unmanageable at home, lies continually, out nights with questionable girl friends. Is a trouble maker, tells one girl what another one said about her and so on, until she makes a complete tangle and confusion. She has stolen twice and frequents cheap dance halls.

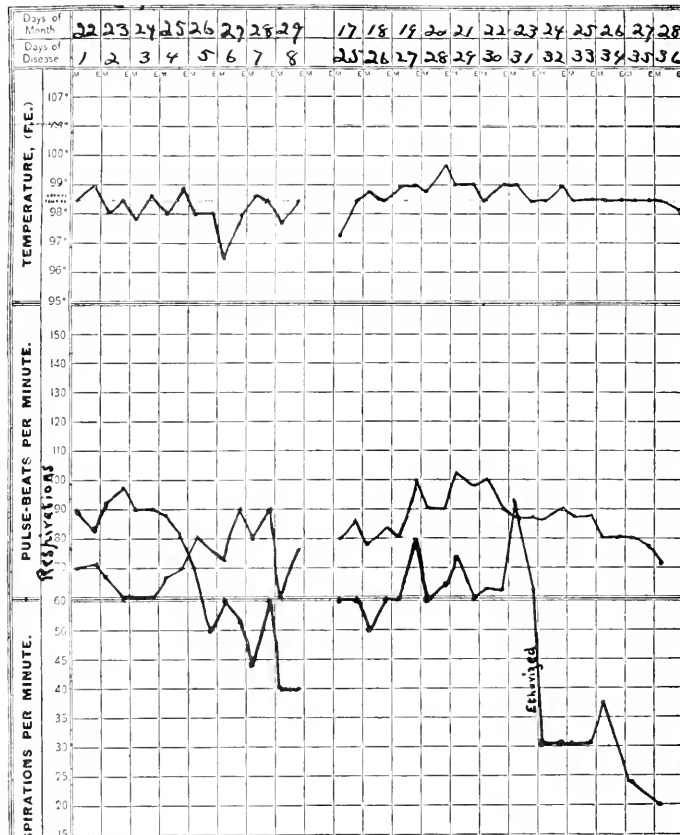
Committed to Lancaster, September, 1911. Physical age, sixteen years; Binet age, ten and one-fifth.

Physical History.—"An attack of heart failure one year ago." Sick two weeks. No other illness. Heart normal at time of first examination. On Sept. 22 she came to hospital complaining of difficulty in breathing, pain in pericardium and across upper part of chest. This of several days' duration. Respiration very rapid (90). While waiting to see the physician she became faint and had to lie down. There seemed to be considerable prostration, hands cold, pulse rather compressible, but not rapid; examination of chest was unsatisfactory on account of the rapid respiration. She had times of coughing and choking. A tendency to general convulsions, hands clinched, arms and legs straightened out. She did not seem disturbed mentally. Said, "If I could eat I would be all right." Reflexes normal. Test of sensation not satisfactory as she would say she could or could not feel, apparently at random. Urine normal. A possible cause of the above attack was that her plans to run away had been frustrated.

The rapid respiration continued for about four weeks; some days she seemed better, others not so well. Attempts to catch her breathing less fast while asleep and off her guard, failed. She complained of a varying amount of pain in the pericardium. There was a very sensitive area near the apex of her heart. She complained of "pin pricks" in her fingers and toes. There were no convulsions after the first few days. She was up for a time but seemed so weak and miserable she was put to bed. Her appetite was variable. She gained in weight.

Oct. 22, she began by having a slight cough, then screamed with pain, clutched herself over heart, pulled and tore clothing. Stiffened out with paroxysms of pain. Respiration 92 and irregular. Cried out for her mother. It was rather difficult to make her answer questions. Hands and feet were cold, left lower chest very sensitive to touch. A consultation was called and she was etherized for diagnostic purposes. Under ether respiration became normal. Heart sounds were normal. During recovery from the ether she vomited an enormous amount of partly digested food, two hand basins nearly full. She was given a severe talking to on the error of her ways. There was no recurrence of the difficulty. We have no further history because she ran away, and, although she has been heard from

ilitic, had gonorrhea and acne vulgaris. At this time gave a history of having had fits since she was fourteen years old. June 25, 1912, had tonsillitis. July 1, was found in a chair with head resting on window, unconscious. She remained unconscious for one-half hour, then had a convulsion which left her dazed. She slept most of the afternoon. Following this she had one or more convulsions every day for seventeen days. As convulsions come on there are clonic spasms of the arms and legs, hands are clenched, thumbs inside, feet extended; her head is suddenly jerked back and to the right shoulder, the left shoulder drawn up. Her muscles then become set in the position in which she happens to be. One day her head was hanging off the bed when she became rigid, and when moved back onto



several times, she has succeeded in keeping out of the way of the officers.

Diagnosis. An unusual hysterical manifestation, with acceleration of respiration to an extreme degree, occurring in a mental defective.

CASE 4. E. B. Italian. Born April, 1896. Father alcoholic. Mother a spiritualist, in good health before E. was born. E. weighed four and one-half pounds, normal infancy, had measles, chicken pox, German measles, whooping cough and hemorrhage from nose. Was not considered nervous. A friend of the family said that she remembered Elsie and that her bold actions were a menace to the neighborhood. She said she had fits in school. This is the only evidence that I have been able to get that E. had any convulsions, fears or hallucinations before she came to Lancaster.

Committed to Lancaster June, 1912. Was syph-

the bed she was in opisthotonos. Left cheek is drawn in. When convulsions begin to pass off, patient swallows, hands and feet relax, eyes look first one way then another. She goes from one convulsion into another. Has had three in forty minutes. During convulsions eyes are closed, pupils rolled up out of sight. When pupils can be seen they are dilated. When she recovers she begins asking questions. One day asked what time it was. When asked to say what time she thought it was, the patient answered correctly, although she had been having convulsions for two hours. At other times she seems dazed, mistakes people. One night fell and struck her head during a convulsion. At another time her face was contorted and she looked diabolical.

July 17, during the rigid state of a convulsion, an ether cone was filled with ether and put over her face. After what seemed to be a long time the patient began to struggle. She was told that if she

would straighten out, put head on pillow, and lie quiet the ether would be removed. This she did. She was given a long talking to, told that she could stop the convulsions and that she must or the nurse would give her something that would make her very ill. Every day for about a week she was told what would happen if she had any more convulsions. She has not had another and it is now eighteen months. Reflexes rather dull. Stands with eyes closed, but there is some unsteadiness, area of anesthesia varying, circulation poor. Passed the Binet test for ten years when she was seventeen years old.

Patient's own story. She does not know her father. Her mother has times of being dizzy, "is rotten inside," has had an operation. There is no one else in family who ever had fits. Since she was eight years old she has had attacks of nausea and vomiting. Since she was ten years old she has had cramps in abdomen once, twice or three times a week. She has had sexual relations with landlord since she was ten years old. He told her that she could get anything she wanted, at home, if she would have a fit. She did not know what he meant until one day she was picking lilacs, when a dog came up behind her and barked; this frightened her and she threw up her hands over her left shoulder. Her mother came to the door and cried out "Elsie is having a fit."

She had her first fit the first day of her first menstrual period. She stooped over to tie her shoe string, was unconscious one-half hour. She was anointed by a priest. After this she had a fit nearly every day. Days she did not have one she was sick at night—buzzing in ears, dizzy, nauseated and, if she got up quickly, was faint. Attacks were worse and more frequent before and during menstruation. She was dismissed from school and lost places in which she worked on account of fits.

She does not usually know when an attack is coming on; occasionally her head gets dizzy, she feels as if everything was going around and as if she was going around herself. She feels as if she was going to fall forward but does fall backward. Once she fell on a stone wall and cut her head; at another time she bit her tongue. She has cut her nose and hurt her knees. At times she gets cold, at others hot, before an attack. She does not cry out, but occasionally tries to talk, this she is unable to do as her tongue is numb.

During an attack she does not know what is going on about her. One day she thought she saw her step-father, who is dead, in a casket of plaster of paris. She sometimes wets herself and occasionally her bowels move while unconscious. She bites her left cheek. She has been told that she frothed at the mouth, and that she gets yellow and black in the face. She never has a headache excepting when coming out of an attack, then there is a pain which feels as if something was pulling from one side of her head to the other, pressure causing it to become more severe. It is because of this pain that she grabs her head at this time. After the attack passes off she sometimes knows what is going on about her, at other times she feels dozey, numb or nauseated. She has had as many as four in one day. She woke up one night and thought there was a statue in her room; she tried to grab hold of it and grabbed the door. Another night she thought her sister came into her room; she tried to grab her, caught the lamp and set fire to the house.

She now says (eighteen months after the above was written, during which time she has not had any

convulsions) that she had no fits before coming to the school, only faint spells; that her landlord had told her that if she did not like the place to have fits and she would get sent somewhere else. At first she made the fits, later she could not help having them.

Matron reports that she has improved. At first had tantrums, would swear, talk obscenely and threaten suicide if things did not go as she wanted. Would take things which did not belong to her. She is an inveterate liar; she can do housework if she wants to, but requires a great deal of directing.

Diagnosis. Hystero-epilepsy occurring in a mentally defective, syphilitic patient.

Remarks. In taking the above history I tried not to suggest anything to the patient, and some of the questions I put in such a way as to draw out the opposite answer if her answer were suggested. I believe the history she gave me at first to be the correct one. This case shows, I believe, the evolution of the convulsive attacks, which were more or less deliberately induced at first, later becoming sufficiently established to require outside assistance to stop.

CASE 5. A. P. A Russian Jew. Born January, 1895. Massachusetts.

Family History.—Parents, brothers and sisters, intelligent and respectable. Father is much upset and discouraged by actions of A. Loses his temper when dealing with her. Strikes her and pulls her hair. Home conditions good.

Past History. She was put on probation between April 29, 1910, and June 6, 1911. A report of her probation covers fourteen pages. There were seventeen people interested in her besides the Children's Aid Society. She was entered at the Emerson College of Oratory as a special student, given lessons in music, instructed in voice culture, work was found for her in stores, etc. She was allowed to return home. She ran away, was with a theatrical company. She was restless and discontented, would not stay in any one place and her conduct with men was questionable.

She was finally sent to Lancaster on June 6th, 1911, as there seemed nothing else to do. Our experience with her was simply a continuation of what had gone before. At the School her conduct was good. She was intelligent, clean and neat. Seemed quite superior in her manner. Was not much of a worker. Cheerful at first, then became depressed, feared she was going insane. Had times of being apprehensive. She complained of nervous tension, that she lost her self-control and said things she did not intend to. At times she was told of things she had said that she did not remember saying. She frequently forgot what had happened during certain periods of from one-half to three hours or more. Never forgot her name. She found letters which she had written that she did not remember writing and that were not sensible, that is, they were about things which had never happened. At one time, before coming to the school, she thought someone was trying to poison her by putting something into her food. Soon after coming to Lancaster she was visited at night by a lot of people, some friends, some otherwise. She said that she attempted suicide once by jumping into a river. Physical examination negative.

She was sent to the Psychopathic Hospital for observation July 30, 1912. They report: "While

here she conducted herself in a fairly normal manner and observation revealed no evidence of any psychosis, neither did she show any definite mental deficiency. She impressed us as a rather peculiar, unstable girl and that her difficulties have been due to her unusual temperament rather than to definite mental disease. Her stories in regard to her dealings with men of which you spoke seem to us unreliable and it would seem to us that untruthfulness on the part of the patient would explain her supposed difficulty much better than mental disease. Our diagnosis was psychopathic personality."

Sept. 26, 1912, placed at housework. Did very well for a while. Began to be very moody and depressed, at times hysterical. Expressed strong feeling that the Almighty had planned her life work, which was the stage. Dec. 13, 1912, place changed. Started in doing very badly. Seemed to be dreaming most of the time. When asked why she did not do better, said she was on the stage most of the time acting heavy parts. When she played a happy part everything went well. Her play at that moment, she said, was one in which she had become engaged and her engagement broken, which meant that she could do nothing well.

Feb. 17, 1913, home. Claimed to have been bitten by a dog belonging to employer's neighbor; brought suit which she won.

May 9, 1913, threatened suicide at her place of employment. November 29, 1913, permission was given A. to go from town to town as a "crew manager" for a periodical circulating company. Later had an attorney arrested for seduction on promise to marry, claiming that she was six months' pregnant, and that he was responsible. Evidence was given that she had been with other men, one of whom she had attempted to blackmail; that she had used morphine and been in the habit of drinking absinthe. A letter dated August 21, 1914, from a commissioner of charities of a city in another state, states that an examination disclosed that she was six months pregnant and suffering from gonorrhea. He also writes that she has no visible means of support and in his opinion is a menace to society.

She was brought back to Massachusetts, and again sent to the Psychopathic Hospital for observation. They report as follows: "Mental examination—Patient is nervous and impulsive and inclined to worry. Seems to lack ambition and sense of duty to other individuals and the community. Psychological examination: Actual age of patient, nineteen years; according to Binet, twelve and two-fifths years; according to point scale, fifteen years. Patient passes tests like any normal person, and gives no evidence of deterioration or mental defect. Comprehension, reason, judgment, planning and discrimination good. Patient has well-developed learning ability and remarkably good comprehensive memory. Constructive and analytical ability is good. Planning is very quickly done. Perception of form is adequate. Apperception is good. Patient is well oriented, has good general knowledge, and appears able to profit by experience. Reads quickly and shows strong interest and good attention. As brought out by examination, the only mental quality that may possibly functionate to the disadvantage of the patient is a slight suggestibility. Diagnosis: Not insane, not defective."

Remarks. I believe that the diagnosis of psychopathic personality describes this case as well as any. Although, as is stated, she appears able

to profit by experience, she does not seem to have so profited. I would like to raise the question of there being a moral defect in this case without there being an intellectual defect. I believe that this girl needs treatment, and that she should have custodial care. Attempts were made to secure treatment in sanatoria, but these failed as the authorities did not feel that they could control her.

CASE 6. B. S. Canadian parentage. Born July, 1895, in Massachusetts. An only child.

Heredity—Paternal: father and two paternal uncles, somewhat lacking in energy, but family shows an average of fair ability and industry. Maternal: mother hysterical, tuberculous; one uncle, sex offender; three uncles, tuberculous; one uncle and three aunts, neurotic; two great uncles paralytic; four cousins, sex offenders; thirteen cousins, tuberculous. All highly nervous and overbearing.

B. was from an early age very peevish and wilful, and everything that her mother and aunt could do to spoil her was done, partly because of their fondness for her and partly because there was no living with her unless she could run things. She was stuffed with candy and rich food, overdressed, and the household ordered completely according to her whim. They abetted her in deceiving her father and the teacher. In school, patient showed herself slightly below average in ability, was surly, deceitful, and cordially hated for her overbearing ways; usually chose rough and younger companions whom she could dominate. She had convulsions while teething, and later a severe attack of pneumonia. Later, when she grew very fat and clumsy, she was laced tightly in order to give her a trim figure. She then began to have fainting spells.

Her mother became very ill and they moved to a large farm, where she ran absolutely wild. Her mother died and she went to live with a married aunt, whose husband undertook to give patient some much needed discipline. She was a big, hoydenish girl, crazy to be on the streets with boys and rough associates, and refused to do anything at home but out-wit and tantalize her uncle in every possible way. She kept the whole place in a state of upheaval; matched his profanity with her own, or, this failing, had a fit and thus got the desired indulgence. Her father sent her to his sister's in the country. Here they failed utterly to control her; she slapped them and pulled their hair or fell in a fit if corrected, and even threatened suicide. Her father married and tried to care for her at home, but she wanted to rule everything and everybody, refused to work or dress properly, exposed herself and talked foolishly. She canvassed several streets in Boston, begging. She represented herself as an orphan child, eldest of six.

Committed to the Boston Society for the Care of Girls, November, 1911. In the first place her conduct improved in every way. Transferred, because she proved "too great a strain." Tried in two other families, she showed herself irresponsible, bad tempered, subject to fainting fits and feigned attacks of acute indigestion. Imagined herself the victim of hatred and persecution on the part of her father and stepmother. Wrote letters to newspapers to arouse public sympathy. When reasoned with or corrected, threatened suicide. It was felt that she might be mentally unbalanced; was examined and pronounced sane.

Committed to Lancaster, January, 1912. At first she showed signs of improvement; was obedient, neat in person and room, and worked well without supervision. After a few months all her old tendencies reasserted themselves. She was stubborn, incorrigible and disagreeable. In her violent fits of temper she once attacked an officer with a broom and another time bit an officer in the breast. She assumed a stiff shoulder. She was tried in several cottages, but her fits of insubordination became more and more frequent. In December she had a number of outbursts, when she kicked and screamed for hours. These outbreaks increased in violence, she swore, scratched, bit and spit at the officers, kicked out the panels of the door, and used the vilest language imaginable. After some of the attacks would seem penitent and at times would go several weeks without an outbreak.

May, 1913, attempted suicide by hanging. May 18, 1914, was much disappointed because she could not fulfill a desired whim. Cried during the night. Seemed all right the next morning. Without warning she attempted to drink household ammonia; her mouth was badly burnt. After this was quiet until the next day, May 20, when she began to talk irrationally. Tore the shades from the windows, tore her clothing, made a mess of her room generally. Screamed, cried and laughed alternately. Passed into a state of sexual excitement as shown by her talk and actions. Said she had on a gown of Irish point lace, the material of which had been brought over from Paris by a friend. That she had made money to pay for it during the past few days by prostitution. Did not seem to know where she was, the month, the day of the week or the time of the day. The next day was quiet, would not talk, did not appear to know those about her; had written obscene words on the window. Taken to the Westboro State Hospital for observation and treatment; on the way seemed to come to her senses, recognized and talked with the nurse who was with her. Physical examination negative.

A report from the above hospital, dated Dec. 4, 1914, states that: "She has continued to have frequent outbreaks when she is very much disturbed, and these outbreaks seem to come regardless of outside circumstances. She showed many mental symptoms suggestive of dementia precox, as, for instance, recently during a disturbed period she repeated certain phrases over and over again in a stereotyped manner."

They made the diagnosis of imbecility, with psychosis.

CASE 7. E. G. Irish. Born October, 1896. Father shiftless, alcoholic, insane. Mother alcoholic, sex offender. Two of mother's sisters alcoholic, sex offenders. Older brother has been in juvenile court and a younger brother in parental school. Home materially and morally bad. Hardly a week passes that the police are not called in.

E. worked in a store, was given a week's vacation on account of poor health, did not return. She arranged to go on the stage, but was prevented. She ran away from home repeatedly. Stayed for a time with an immoral woman; later went to a house of ill fame where she was found. She had had nothing to eat for several days. Her clothes were in a deplorable condition. She was found to have diseased lungs and was taken to a hospital. She was

placed in several families, in all of which she was very rebellious and discontented.

She was sent to a trade school, went one day but would not go back. Drank the contents of a bottle said to be poison; was taken to the Emergency Hospital where she was unconscious about four hours. She made several attempts to take her life while at the House of the Good Shepherd, and at their request was examined by an alienist and sent to a hospital for observation. She worked at the Carney Hospital as ward maid for a few days. She left without telling anyone and carried off the key to the ice chest. Was found, brought back, given another trial, but only remained a short time. She was taken to the Boston City Hospital for observation; reported to be normal.

Committed to Lancaster, August, 1912. An attractive, ladylike, well-appearing girl. Seemed much superior to most of our girls. In sixth grade of school. We had been warned that she threatened to kill herself if she came to Lancaster; precautions were taken to prevent this. The second day she scratched her arms in what she said was an attempt at suicide. A few days later she was found in her room with a wet towel tied tightly around her neck. Was reported black in the face and unconscious. All attempts to arouse her failed. She lay quiet in bed with eyes open, occasionally winking but apparently not seeing. There was no response to any outside manipulation. Would not swallow. As her condition remained unchanged for a considerable time she was sent to a state hospital. Observation failed to reveal any psychosis and she was returned to Lancaster.

She was placed in a family, but did not do well. Was arrested for being drunk and disorderly. The officers were frightened by her repeated attempts to take her own life and her irresponsible behavior. She was sent to the Psychopathic Hospital for observation and for the fourth time declared not insane. Sept. 10, 1913, was discharged by the trustees of the Lancaster School as an unfit subject. Returned to care of her guardian.

A report from the Psychopathic Hospital states that: "Probably her suicidal attempts are not due to a psychosis, but result from an emotional crisis. She is not insane. Psychological examination: Binet test, does the twelve and fifteen year old series. This is better than you would expect, because the most noticeable thing about her is her inability to learn from and profit by experience. She is suggestible, follows the path of least resistance.

"*Diagnosis.* Not feeble-minded, but subnormal. Within the border-line of defective delinquent."

CASE 8. F. D. American parentage. Born February, 1895. Father alcoholic. Mother migranous, sex offender. Three aunts tubercular. Mother's mother had a very violent temper. Sister a delicate looking girl, refined and of an irreproachable reputation. Environment very bad until five years old, after which she was boarded in good families. Was always untruthful, but gave no real trouble until she was thirteen years of age, when she became sly and deceitful. Had violent tantrums. Smoked, got into bad company. In house of ill fame five weeks.

Committed to Lancaster, March, 1910. A pretty,

attractive girl. Small, fair hair and complexion, blue eyes; face in repose has a look of refinement, at other times, hard, hardly human. Holds her head oddly. Has a peculiar gait, walks with one foot over the other, toes in. A sulky, headstrong, unmanageable, disreputable girl. Gloried in her former life and wished to return to it. A constant trouble maker among the girls, enticing them to evil. Had to be sent to the disciplinary cottage. Began to act like a maniac. She barricaded the door, screamed, pounded and raged. She fought and bit the attendants and had to be put in a straight jacket. She managed to get this off and tore down the shelf, which she threw out of the window. She threw a cup and a glass jar at an attendant who passed below her window. She kept this up for a week, swearing and using obscene language. We did not feel, in the face of our other experiences, that we could certify her as insane, and the authorities did not like to send her to the Reformatory for Women, but she became so violent that at last they were forced to do so. After her release from the Reformatory she ran away and could not be traced. Later we heard she had been found in a camp of Italian laborers and sent to the Bedford Reformatory, New York. The assistant at Bedford says she ran away from Boston at the time of a strike with one of the strikers, and later formed this camp with him. Here she acquired the drug habit, and seems to have been the common property of the camp. On her arrival at Bedford she used the same tactics as at Lancaster, immediately barricaded her door and broke everything possible. Everyone worked with her and for her, but she grew more unmanageable and finally, considering the case a hopeless one from their point of view, she was committed indefinitely to the Matteawan Institution for the Criminally Insane.

She was returned to Massachusetts and sent to the State Infirmary for observation. In response to a letter of inquiry, I got the following: "She was seen by alienists and considered non-committable. While in the insane ward she was quiet, indolent and lazy, but caused no special trouble. She very frequently had outbursts of temper. Used profane and obscene language as well as attempting violence. As far as I can ascertain she would seem to come more directly under the classification of moral or constitutional inferiority."

CASE 9. S. N. Colored, illegitimate. Born January 23, 1901. Was committed to Lancaster November, 1911, on complaint of principal of school. She did not do well in her studies, disturbed the school; a very bad influence on the boys and girls in her room. Would run away and frequent disreputable places of amusement, continually stole. She has shown immoral tendencies since she was three years old. December, 1911, passed the Binet test for ten and one-fifth years (was eleven years old). A small, undeveloped child, has a congenital cataract and weak arches. In the school she has been a very difficult child to manage. She has lived in four different cottages, in each of which she caused so much disturbance and was so insubordinate that a move was necessary. She is very unclean, even filthy; a constant bed wetter.

She has an extremely violent temper and invariably when corrected threatens to commit suicide.

Her language at such times is most profane and obscene. She will throw herself on the floor, kick and scream. On several occasions she has spit in the faces of officers. At one time she bit the neck of a girl who came to the assistance of the teacher she was attacking. When shut up in her room during one of these outbreaks she looks more like an animal than a human being. At times she crouches in a corner of the room, her small shining eyes following whoever may be in the room, as if ready to spring on them, her hair pushed up until it stands from her head in disorder, her expression demoniacal. During these times she will not answer questions. The room is in disorder. Everything that can be has been smashed and the litter strewn about; windows broken, hooks pulled from the walls, base boards smashed, her clothing torn, curtains, bedding, etc., in shreds. Again she will pound, scream, shout obscene sentences and make everyone within hearing uncomfortable. She usually has to be carried to her room. She will kick, scratch and bite while being undressed. Without provocation she will hide under beds, in dark closets, in the coal bin or the ash bin and refuse to come out. She will not comb her hair, brush her teeth or clean her room without strict and oftentimes strenuous supervision.

One report reads: "She is extremely disagreeable and insolent, in both manners and speech. Not a day passes but that she refuses to do things she is told to do, but when told not to do the same things she will immediately do them. Sometimes she will refuse to obey and will go and lie under a table or go into a closet. She is often reported from school for various misdemeanors. At times she refuses to answer to her own name and will only answer when called by her teacher's name. Whenever punished she will refuse food in any form for days."

Another report says: "She is mean and deceitful, is a continual tale bearer and so a constant trouble-maker among the girls. Her work is slack. Shows no interest or desire to learn to do better, is very untidy and dirty. Mentally—average, but slow. She usually has an outbreak just before the menstrual period; during the period she is more amenable than at any other time."

The superintendent writes: "She is very animal-like in all her habits and has shown absolutely no improvement since she came to the school, so that we feel it would be impossible to place her. On the other hand, she has a most demoralizing influence in the institution and we have accomplished absolutely nothing by way of reform in the three years she has been with us." I have never been able to satisfy myself that she has any false ideas. She can be made to behave for a short time by telling her that she will be sent to an insane hospital or that some surgical operation will be performed on her if she does not mend her ways.

Diagnosis. Defective delinquent of the explosive type.

There is no question in my mind but that in our work with mental defectives we have an irregular development to deal with. In many cases there is a defect of all the mental faculties; in others, many of the mental faculties are sufficiently developed to pass for normal, while other

faculties are defective or have never been developed. Many intelligent people find certain things much more difficult to master than others,—language, mathematics, music. Many masters of finance do not have the same idea of right and wrong as does the average person. How much more marked may the unequal development be in the unintelligent and the defective! We should not expect a child brought up in a family where promiscuous sexual indulgences are common, and where getting caught is the only crime connected with thieving, to have the same standards of morality as one differently situated. It is oftentimes difficult or impossible to determine whether we are dealing with a defect or whether the apparent defect is due to a lack of development, and if the latter, whether there is a possibility of developing the desired faculties.

The Binet and other psychological tests fail, I believe, to differentiate many of the high-grade defectives. The defect has, in some cases, to be determined by observations of some length. A carefully kept history of the transgressions is, I believe, important in determining whether a defective delinquent should be allowed to live in the community or not. Engrafted upon, or because of, the defect we often have a psychopathic condition.

The above cases differ one from another in many ways, but they have certain qualities in common:—

First, they are all delinquents. They have been judged and committed as such by the courts.

Second, they are only partially responsible for their acts, and have no relatives or friends who are able to control them.

Third, the hysterical symptoms, the exaggeration of symptoms due to physical defects and the simulations of disease oftentimes increase their inability to compete with other more fortunate individuals in earning a living.

CONCLUSIONS.

First, they are a prolific source for the spread of venereal diseases.

Second, their children will undoubtedly be as abnormal as the mothers, or more so.

Third, they do not belong in a reform school, as they cannot be reformed. They upset the discipline, and are a detriment to the best interests of others who can be helped.

Fourth, they do not, with one exception, belong in an insane hospital or a feeble-minded school. This, I believe, has been proved by the repeated terms of observation in insane hospitals and wards which the more questionable cases have been given.

Fifth, the expense of proper custodial care would be much less to the state than under the present unsatisfactory system when we consider the time taken by the courts, probation officers,

police, their intermittent control in more expensive state institutions, etc.

H. G. Wells, in his book entitled "Marriage," makes the leading character refer to what he calls a "Gawdsaker." When asked what a "Gawdsaker" is he says, "He's the person who gets excited by deliberate discussion and gets up wringing his hands and screaming, 'For Gawd's sake let's do something now!'" Without being a Gawdsaker, I believe the time has come when we should ask for custodial care of the more definite cases of the type given above, and if we decide on some definite plan and all work for the same plan, I believe we can get what we ask for.

NOTE.—Chapter 595, Acts of 1911, providing for the maintenance at the Reformatory for Women, the Massachusetts Reformatory and the State Farm of departments for defective delinquents, Section 12. "This act shall take effect when the departments named in Section 5 are ready for occupancy. The prison commissioner and the trustees of the State Farm shall notify the Governor when said departments are in a suitable condition to receive inmates; and the Governor may then issue his proclamation establishing such departments as places for the custody of defective delinquents."

SOMATIC CHARACTERISTICS OF GENERAL PARETICS.*

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INTRODUCTION.

STIMULATED by the articles and work of Dr. John Bryant, I have become interested in seeing if there is any relationship between individual types and certain kinds of mental disease. In brief, the thesis advanced by Dr. Bryant is that the human race stands midway between the carnivora and the herbivora; that certain individuals are pure carnivora, and others, pure herbivora, while the majority of mankind is of a mixed type; that pure carnivora, or pure herbivora, when unable to obtain or digest their appropriate diets, and for other reasons, are more likely to become afflicted with disease than are individuals of a mixed type, and that the kind of disease that attacks an individual depends upon the type to which he belongs—the carnivorous individual being prone to the diseases that afflict the carnivora, and the herbivorous individual being prone to the diseases that afflict the herbivora.

Races living in the tropics are generally herbivorous in type, whereas as one proceeds northward, the characteristics of the races become more and more carnivorous in type. Thus, a pure African negro is herbivorous, and the Anglo-Saxon often carnivorous. This variation

* Being Contributions from the Psychopathic Hospital, Number 67 (1915,4). The paper was read at the meeting of the Boston Society of the Medical Sciences, January 19, 1915. (*Bibliographical Note*.—The previous article, by Dr. John Bryant (1915,3), entitled "The Carnivorous and Herbivorous Types in Man," was published in the BOSTON MEDICAL AND SURGICAL JOURNAL, March 4, 1915.)

in type is believed to have come about as a result of diet,—an herbivorous diet being most easily had in the tropics, and a carnivorous diet in the north, where in winter vegetation is snow covered, and as a corollary to this theory, it may be added that in the tropics certain individuals flourish and certain other individuals go to pieces. It is to be expected that neurasthenia, debility, and brief success will attend a long, slim, high strung, difficult-sweating individual, and that relative success will remain with a thick-set, phlegmatic, vegetable eater upon migration to the tropics.

Bean divides the human race into the epitheliopath, or hyper-ontomorph, which corresponds to the carnivora, and the meso-epitheliopath, or meso-ontomorph, which corresponds to the herbivora. These two types differ distinctly in habits, anatomically, and in susceptibility to certain diseases. The carnivorous type is exemplified by the quick-thinking, quick-acting, high-strung, quick-eating individual, with slow pulse, low blood pressure, and sub-normal temperature. In appearance, this individual is of the long, lithe variety, with sallow complexion, long head, more prominent cheek bones, eyes near together, ears long, thin and flaring, nose long and thin, chin pointed, neck long, prominent Adam's apple, shoulders sloping, narrow costal angle, long waist, narrow hips, and long, slender extremities. On the other hand, the herbivorous type is exemplified by the more ponderous thinking, easy going, slow-eating individual, with higher pulse rate, blood pressure and temperature, and in appearance this second individual is of the shorter, heavier variety, with rosy complexion, round head and face, widely set eyes, ears thick, wide and flat, nose flat and wide, square chin, short, thick neck, square shoulders, wide costal angle, barrel chest, short waist, broad hips, wide, straight back, and shorter, heavier extremities.

In general medicine we have recognized clinically, the tendency of certain diseases to afflict certain types of individuals. We have distinguished the quickly fatal type of diabetes attacking the young, thin man, and the relatively innocuous diabetes of the old and fat. We have recognized the thin Anglo-Saxon servant girl as the commonest soil for the symptoms of hyperacidity and gastric ulcer. Pediatricians have recognized the highly strung, fine-lined type of child, prone to carbohydrate intoxication, as shown by carmen lips, acetone odor of breath, and gastro-intestinal symptoms. We have recognized a tubercular type of individual; also the fat woman inclined to gall stones; the full-blooded, thick-set, aldermanic type inclined to interstitial nephritis and the short necked, thick-set individual, who is given a poor prognosis when afflicted with pneumonia; the individual inclined to chronic appendicitis, and those prone to the acute fulminating appendiceal attacks, and the long drooping, neurasthenic type with ptosis

and faulty carriage. Only recently have investigators suggested reasons for these differences in the proneness of different types of individuals to different classes of diseases, namely: that the herbivorous individual can be expected to suffer from diseases involving mesodermal structures, that is, the gall bladder, kidneys, and arteries; while the carnivorous are prone to diseases of ectodermal structures, that is, the lungs, gastro-intestinal tract, and nervous system.

From the point of view of the general practitioner, fascinating lines for investigation stretch forward in the field of diagnosis, prognosis, and preventive medicine when one considers this hypothesis concerning mankind. Given an early case of appendicitis, should prompt operation be indicated because the individual is of the type that will probably soon develop general peritonitis? Or given a case of pneumonia, should digitalis be started early because cardiac involvement is likely to occur in that type of individual? Or given a child of carnivorous stock, how far can diet swing that child away from the pure carnivorous type, prone to disease, to the mixed type, relatively immune? And so on, in fascinating ramifications.

From the point of view of the psychiatrist, it has occurred to me that a study of the relationship between individual types and mental disease would be of interest, if such a relationship could be found.

Method. Although the records of the Psychopathic Hospital have not been compiled with an idea of showing clearly whether an individual patient belongs to the herbivorous or the carnivorous group, yet from the record of the height, weight, temperature, pulse, respiration, and the general physical examination, certain general conclusions can be drawn. One hundred cases of general paresis were chosen for study. Cases of this disease were picked for two reasons. In the first place, the diagnosis of general paresis is now based, not upon indefinite clinical evidence, but upon laboratory findings, that is, evidence of syphilitic involvement of the nervous system, as indicated by a positive Wassermann reaction in the spinal fluid; and secondly, because this disease occurs mostly in mature adults who have reached their full stature and development before falling victims to the infection, and are consequently likely to show by their physical development the type to which they belong. Of the one hundred cases studied, 81% showed positive Wassermann reactions in the spinal fluid. In the remaining 19 cases, positive Wassermann reactions were obtained from the blood, and the spinal fluid was either suggestive or else not examined. Thus, in all cases, there was positive evidence of syphilis.

Of the one hundred cases chosen, all were males. The civil status was as follows:

Single	26
Married	65

Widowed	4
Unknown	5

In age, they varied from 18 to 62 years, and were distributed by decades as follows:—

Second decade	1
Third "	5
Fourth "	44
Fifth "	34
Sixth "	15
Seventh "	1
<hr/>	
Total	100

The occupations were of many sorts, among them the following (that by lead or alcohol poisoning may have helped to undermine the nervous system): Three painters, one steam fitter, one rubber worker, two liquor dealers. Inasmuch as Dr. P. C. Knapp has already written of the menace to the community of general paresis in certain occupations, it is also interesting to note among these one hundred cases, one automobile worker, one motorman, one brakeman, one locomotive engineer, one Pullman conductor, one railway conductor, one car inspector, one janitor, one captain of a tow-boat, one lighthouse-keeper.

The nationalities represented were as follows:

Irish	30
English and Scotch	10
Swedish	3
Russian	5
Belgian	1
Canadian	8
United States	26
<hr/>	
83	
United States, colored	5
Italian	3
German	2
Cuban	1
Portugese	1
Turk	1
Greek	2
Swiss	1
Unknown	1
<hr/>	
17	
Total	100

In other words, 83 were representatives of Northern races, including Anglo-Saxon, Slavs, etc., and only 17 representatives of Southern races.

From insurance tables of the United States and Canada the normal height and weight of individuals at various ages were obtained. These tables showed the average heights of males to be 5 feet 7 inches. Among the hundred cases studied, the average height was 5 feet 8 inches. Sixty-eight per cent. of the cases were of average (*i.e.*, 5 feet seven inches) or more than average height, while only 32% of the cases were subnormal in height. A study of the weight showed that 84% were subnormal in weight for their height and age. These cases averaged 23.1 pounds subnormal in weight. Eleven per cent.

of the cases were above normal in weight averaging 11.4 pounds above normal.

Discussion. The study of these one hundred cases was undertaken to verify if possible, from the incomplete data at hand, the hypothesis that the discrepancy between the large number of individuals infected with syphilis, and the small number—about 3 or 4%, that develop general paresis, may possibly be due to the fact that only a certain type of individual is liable to develop nerve lesions, and that this type is the so-called carnivorous type. De Fursac, in his Manual of Psychiatry, states: "It is certain that syphilis is common, and that general paresis is rare, among Arabs, Abyssinians, and South Africans, as was shown by Ballet, but this proves nothing at all. It is quite possible that syphilis cannot produce the lesions of chronic meningo-encephalitis except in certain conditions created by civilization and absent among primitive and low races. General paresis is not, as was once believed, the special privilege of cultured men. It affects the working classes as well as the upper classes. Why do only three or four per cent. of all cases of syphilis develop general paresis, while the rest escape it? Neither virulence of infection, nor neglect of treatment seems to be responsible for the development of general paresis, for many cases of syphilis remaining for years untreated, and characterized by extensive and destructive syphilitic lesions, never develop general paresis, while other cases of slight infection, promptly and vigorously treated, later, nevertheless, develop the disease. It would seem then that we are dealing here, not with a specially severe, or modified infection, but with a special reaction to it." Dr. C. J. White reported last summer that an analysis of 1016 cases at the Massachusetts General Hospital showed that only eight developed tabes and only one general paresis, and that 94% of the paretics came from Great Britain, or were descendants of the recent emigrants from the British Isles. Also, that of 178 paretics, only a fraction more than 1% had ever suffered from late cutaneous syphilis. Can it not be thought that instead of a special type of infection, there is a type of individual particularly susceptible because of his physical characteristics to develop syphilis of the nervous system?

CONCLUSIONS.

First. There is considerable evidence to show that individuals of the so-called carnivorous type are particularly susceptible to diseases of the nervous system.

Second. In a study of 100 cases, diagnosed clinically as general paresis, among whom 81 showed a positive Wassermann reaction in the spinal fluid, and the remaining 19 a positive Wassermann reaction of the blood, while the spinal fluid was suggestive or untested, the hypothesis that these cases were of the carnivorous type was supported by the fact that 83% of them were Northern races; 68% normal or above

normal in height, and 82% averaged 23.1 pounds subnormal in weight.

Third. The hitherto unexplained discrepancy between the many cases of syphilitic infection and the small per cent. of syphilitic individuals developing general paresis, may be explained, not on the hypothesis that there are varying strains of spirochetes, or by coincident environmental strains, alcohol or other intoxicants, but by the fact that only a certain type of individual is susceptible to syphilis of the nervous system.

Reports of Societies

THE BOSTON SURGICAL SOCIETY.

PROCEEDINGS OF THE BOSTON SURGICAL SOCIETY.
STATED MEETING OF FEBRUARY 1, 1915,
BOSTON MEDICAL LIBRARY.

The President, DR. GEORGE H. MONKS, in the chair.

A REPORT ON SOME CASES OF PERINEAL PROSTATECTOMY.

Dr. Franklin G. Balch read a paper with this title, for which see page 507.

DR. A. L. CHUTE: Some of the writer's points I agree with, others I am unfamiliar with, still others I disagree with, in spite of the fact that one feels a certain amount of timidity in disagreeing with a method that has given such good results as has his.

In the first place, I agree most heartily with the writer regarding the value of the perineal route in prostatectomy. I believe it has been too little used of late. I do not, however, esteem it as highly as the writer, since I use it on only about one-third of my cases. I feel that I can do the others better by the suprapubic route. I do, however, contend that the perineal operation is the only one that is universally applicable in cases of prostatic obstruction. By its use one can remove the big prostate, the small one, the malignant type, as well as the fibrous bar at the bladder outlet; in fact all the types of prostatic change that produce obstruction, including the so-called third lobes. As Dr. Balch has shown, one can also remove calculi by this route.

I think no one contends that the suprapubic operation can be done with as little mortality as the perineal. It is easier, and while it has a larger mortality, especially in the hands of the occasional operator, it requires little skill, and the final results are usually good. Therefore it is largely used and will continue to be. But the above are not the only reasons why the suprapubic operation is the favorite. The perineal operation has been followed by a goodly number of cases of incontinence, by perineal fistulae, by injuries to the rectum, by failures to remove the obstructing mass, misfortunes which I believe are rarely encountered by the operator skilled in the perineal route, but common in the hands of the occasional operator. These complications practically cannot occur following the

suprapubic operation, which, though it may kill, almost never maims.

Dr. Balch has modified the usual technic of the perineal operation so that it sounds easy. However, I have to confess that I have never carried it out according to his method, nor even seen it done; but his incision of the membranous urethra without attempting to uncover the whole perineal face of the prostate, sounds attractive and has certainly made the operation much easier and quicker and done away very largely with the danger of injury to the rectum. His method of enucleation seems reasonable. It is the principle generally used when the operation is done from above, and simply varies in that it is carried out from below. That he is very expert in the management of his drainage is indicated by the fact that he does not have perineal urinary fistulae, that restoration of function comes early, that his patients have perfect control, that epididymitis is uncommon, and the patients' stay in the hospital is short.

There are certain things that Dr. Balch advocates that I disagree with, and constant irrigation is one of them. I do not fear it much on the score that a patient may bleed more than you think without your recognizing it, though I think this is possible. My chief objection lies in the fact that constant irrigation does not allow one to estimate carefully the amount of work done by the kidneys as represented by the secretion of urine. I believe that the great danger following prostatic operation is renal insufficiency. Although the use of spinal anesthesia and knowledge of the renal function diminishes the probability of this, it does not wholly do away with it. It is, therefore, most important to know as accurately as possible the amount of work the kidneys are doing. This is impossible during the time irrigation is kept up. While I think Dr. Balch's incision into the membranous urethra and his method of enucleation are most desirable for most of the cases, especially the ones with the large, adenofibromatous prostates, yet I believe it would be inferior to the transverse incision of the perineum with full exposure of the gland in cases of cancer and fibrous atrophic prostates. It is my belief that these cannot be enucleated and must be dug out piece-meal with rongeurs or scissors. In order to do this, it is absolutely essential that one have a good exposure of the field. I should feel that his enucleation from below would have even greater limitations than the enucleation from above, which I find very unsatisfactory in these two classes of cases.

I wish to congratulate Dr. Balch on the results achieved in this series of cases. While he lost two cases in twenty-eight, one died of a perforation of the sigmoid by a rectal tube, giving mortality which was actually due to the prostatectomy as but 3 1/2%—a very low one indeed.

His absence of fistulae and incontinence in these cases is very gratifying, but the thing that arouses my envy especially is the small number of cases of epididymitis that he has. A very large percentage of my cases, whether I do them perineally or suprapubically, present this complication. I suppose his freedom from it is due in a measure to the very short time that his patients have any tube in the urethra and to the very little instrumentation that they receive.

DR. PAUL THORNDIKE: I propose not to take more than five minutes, for methods of operation

have been discussed already very thoroughly all over the country. Dr. Balch has used a method of approach which is quick. Dr. Young's method in my hands takes much longer. Dr. Balch's operation is a distinct advance toward the better way, a quick way. At the City Hospital, where we get the old and feeble cases, I have to do the operation in the shortest possible time. We have to take the worst cases and do the best we can with them. There are distinctly inoperable patients, upon whom the surgeon would rather not operate, but must do so. They are the worst kind of prostatics, with bad arteries and bad hearts, all to be subjected to operation, because there is nothing else to be done to make them comfortable. By this suprapubic method I can operate quickly, easily and thoroughly, and either with spinal or local anesthesia, without much effect upon the kidney. I did a lot of them last year—no deaths, no leaks, one case of hemorrhage ten minutes after operation, which was packed and ceased quickly. I believe the whole key-note of success in these feeble old cases is quickness. In a young case a good result can be obtained, no matter how one does it. In an old and feeble case the operation must be done quickly. Quickness, facility, the least anesthesia and least fussiness in the after-care are the essentials. In the after-care there is nothing necessary except to nurse the patient. If you keep disturbing the patient with washings and dressings you are inviting trouble. I never wash out the bladder unless it is dirty. My routine is "the simplest, quickest and easiest way both in operation and after-care."

DR. HUGH CABOT: I want to avoid entirely the question of route because I am frankly in doubt about it. It depends, perhaps, upon how long one's finger is; I have rather a short finger, and unless I can borrow length from Dr. Balch I cannot expect to do what he can. I want particularly to discuss the kidney function, and anesthesia. Lowness of kidney function does not seem to me a contraindication. I believe that stability is far more important and whether there is retained nitrogen of the blood. That is the final test. If the nitrogen of the blood is not above normal limit we have a good operative risk. We may have a renal function of 30 and yet a high nitrogen, and an extremely hazardous risk. I believe in stability rather than highness or lowness of function. Also, simply one test of function is not enough as function may fall after admission. Acute pyelonephritis has this effect and may practically abolish the kidney function.

Our views in regard to spinal anesthesia have undergone considerable change. Up to about a year ago, we were inclined to regard it as the anesthetic of election in bad cases, but have largely abandoned it for this purpose, owing to the enormous drops of blood pressure, which were very common and which we came to believe were in some way associated with arteriosclerosis. Not only did these patients with diseased blood vessels have a greater drop of blood pressure, which sometimes amounted to 100 mm. of mercury, but they seemed less able to recover their blood pressure, and therefore more likely to suffer from cardiac weakness after operation. In younger patients without arterio-sclerosis these enormous drops have not seemed to us to occur, and we still use it freely under those circumstances. For the older patients we now use gas and oxygen. Ether we have entirely discarded because we believe it to be highly objectionable in the conditions of

pulmonary irritability with more or less definite disease which is so common in these patients. With the gas and oxygen we combine Crile's method of anoci-association.

DR. LINCOLN DAVIS: I should like to mention one point that was brought to my attention in Rochester. The operator was taking great time and care in stopping hemorrhage. He was doing a suprapubic operation and was suturing the neck of the bladder. He said, "We used to think we had to be in a great hurry to do this operation. We are trying now to stop the hemorrhage absolutely. We are doing this rather than a rapid operation." It seems to me that this is an important point. How often a rapid operation is followed by a prolonged steady oozing from the wound. It is the post-operative loss of blood which starts the patient on the down grade and makes him an easy prey to pneumonia or other complications. I believe hemorrhage is the great factor in the mortality of prostatectomy, and that the prevention of hemorrhage is of far more importance than the saving of a little operative time.

DR. BOTTOMLEY: I want to ask Dr. Balch why he thinks enucleation from below causes less hemorrhage than enucleation suprapubically.

DR. BALCH: I don't know why, but in my cases it seems to do so. You can also control it more easily by packing from below.

ON THE FIXATION OF FRACTURED BONES IN INFANTS AND YOUNG CHILDREN.

DR. E. H. BRADFORD and DR. ROBERT SOUTTER presented a paper with this title, for which see page 508.

DR. F. B. LUND: I have never treated a fracture of the thigh in an infant. I think Dr. Bradford's scheme is a very ingenious one. It seems to me that I should find some difficulty in driving the hole accurately without taking away the soft parts. If I had a case, I should send it to him for treatment.

In 1911 I read before the Massachusetts Medical Society a paper entitled, "Experiences of a Beginner in the Operative Treatment of Fractures," in which I reported eleven cases, four of which were fractures of the femur. Since that date, I have operated upon 29 cases of fracture of the femur and about 100 cases of fracture in general, 18 by Lane plates and 9 by the Parham and Martin band.

All of my earlier cases were patients in whom conservative treatment had failed, and either non-union or mal-position, or both, made the operation necessary. These operations in the old cases were difficult; there were many adhesions to the muscles, nerves, and vessels, old callus had to be cleared away, and in some of my early cases the re-position of the ends was not perfect. Two of the four cases reported in the former paper were failures; either on account of imperfect fixation by splints or imperfect external fixation, the fragments came apart, and although they finally united, the plating operation had done no good.

Remembering these cases and the large number of delayed unions, non-unions, and cases of deformities that I had seen in conservative treatment of fracture of the femur, I have continued to practise operative fixation in about half of the cases of fracture of the femur, namely: transverse fractures (which require plating), all fractures of the upper third which cannot be brought into good apposition

by conservative methods, fractures close to the knee, with overlapping of the fragments, which rarely can be reduced by non-operative measures, oblique fractures of the shaft which cannot be brought into position by extension and fixation in plaster of Paris.

I have learned a few things in regard to plating: In the first place, that while we ought to use as small a foreign body as possible, a long, heavy plate is better than a small, weak plate for a fracture of the femur.

Bone plating is, I believe, the best method of fixation for transverse fractures. The screws for bone plating should have wide, deep threads like wood screws. The Sherman screws, which have very shallow threads close together, do not hold as well in bone. The ends of the Sherman screws, which are flat with a thread cutting arrangement, are so large that if you bore a hole big enough to let them in, the base of the screw next the head does not hold, and the screws are apt to loosen.

For the last two years, I have had no infections. We have used a two- or three-days' skin preparation, and I believe that most infections come from imperfect preparation of the skin. I believe it very important to keep the fingers out of the wound as much as possible because gloves are apt to become torn on jagged ends of bone.

The suture of the fascia lata prevents muscle hernia, and stops hemorrhage by compression of the muscle against the bone.

After operation, fixation with plaster of Paris.

In oblique fractures and in comminuted fractures, the Parham and Martin band has distinct advantages over plates. It is mechanically more perfect. A band bound tightly around the bone forces the oblique surfaces into apposition so they cannot slip by, and if they should slip a little, it would tighten the band rather than loosen it. The pull of the muscles coöperates with the band itself to hold the band tight. It is easier to put on than the plate, requiring no driving and no care about screws. Dr. Cotton has alluded to the manner in which the extensive oblique surfaces unite when held in contact.

By the way, in plating one should always use a hand screw driver instead of one driven by a spring, because one wants to feel that the screw is of the right tightness,—not too tight or too loose.

Plating is more satisfactory in the middle of the shaft of bones than at the ends, because the thread does not hold in the cancellous tissue, and the cortex of the bone near the ends is too thin to hold the plate firmly. This is illustrated in some of the pictures that I shall show.

Fractures of the femur in children usually do well by vertical extension, but the operative treatment of fractures has as definite success even in children as it has in adults. Children are so hard to keep still, and the constant care and readjustment of extension apparatus is very trying. After plating or banding in adults or children, the patients can be put up in comfortable plaster of Paris bandages, where they can be kept for three weeks, merely cutting a window on the tenth day to take out the skin sutures, which is a distinct advantage.

As to results; I have spoken of two failures in my early cases. In early cases also, there were two infections. The first case was a patient with fracture of the upper end of the shaft, with marked deformity, who refused operation. The ends were in perfect apposition, but the first time he got out of

bed he fell down and broke his femur. The displacement was so marked that he saw himself that something would have to be done. A heavy Lane plate was applied. It was a long and difficult operation. A fourth-day infection appeared. The wound was opened and washed out daily, and the plate was left in position for six weeks, and then removed, and he has a perfect result.

The second infection occurred in a case of comminuted fracture in the lower third of the shaft in an alcoholic of about 60 years of age,—a very poor operative risk. After plating with a moderate-sized plate, he became delirious and fouled his dressing so that the wound became infected. A large sequestrum had to be removed, together with the plate, and the remaining jagged fragments overlapped so that a week or two later, one of them eroded the femoral artery and the patient died of hemorrhage.

My other fatal case has been described by Dr. Bruce. It was a difficult operation for an old fracture of the upper end of the femur performed under nitrous oxide and oxygen anesthesia. The patient was put to bed in excellent condition, but died suddenly of embolism.

I have had three cases only in which the plate had to be removed. Only one of these apparently was infected,—the case described above. In one case, the plate broke and union did not take place. Afterwards Dr. Cotton replated the leg successfully.

I have had three cases of comminuted fracture. One case of spiral fracture of the upper end of the femur with very bad deformity caused by a gunshot wound was treated by a long 8-screw plate and two wires, with excellent result. This case was published in the *Journal of the American Medical Association* of Feb. 21, 1914. One comminuted fracture was treated by a band, and one by a double band. I have x-rays of these cases to show.

One case in which bone plating was attempted but not performed is of interest. The patient was a farmer from New Hampshire, who had a shortening some two months after the injury, gangrene of the big toe, a large bed sore on the heel, and a large hematoma on the inner side of the thigh, over which could be felt running an artery. I felt that amputation was his best chance, but two of my colleagues advised me to reduce and fix the fracture with a plate. On exposing the bone and working around it, we opened the hematoma, and a large amount of dark blood escaped. A rapid hemorrhage began, evidently from the femoral vein, the patient fell into deep shock, and his life was saved only by a quick amputation.

I feel sure that my results in operative cases have been better than they average by conservative treatment, but I have no statistics to prove it. The band cases, where wide and broad oblique fractured surfaces are brought into position, certainly unite more quickly than the transverse fractures, which have to be plated. I will show you a case of banding an oblique fracture of the femur in a case of ankylosis of the hip, with perfect union in six weeks. This case would have been very difficult to treat by extension owing to the hip ankylosis. A woman of 60 years of age had excellent union in three weeks, of which I will show a lantern slide; in this case also the lower end of the upper fragment almost projected through the skin directly under the patella,—surely a case in which conservative treatment would have been very slow and given very doubtful results. I now believe that the majority of cases of transverse

fractures of the femur ought to be operated upon. Fractures of the upper and lower third of the shaft, whether transverse or oblique, should usually be operated upon; and I also believe that in oblique fractures banding with the Parham and Martin bands is better than plating.

During this time, I have used the plates and bands in operating on both bones of the forearm, tibia and humerus, with most satisfactory results, and only one infection. I think there have been 100 cases in all.

DR. CHARLES L. SCUDDER: I want to present three new instruments which may be of interest in connection with the technic of the operative treatment of fractures.

You are all familiar, I believe, with the Lowman clamp, which is intended to grasp the two fragments of the fracture and to hold the steel plate in position while the drill is used and while the screws are placed. I have found the Lowman clamp inefficient in one particular—the third anterior and movable arm of the clamp does not always fit the bone and hold the plate accurately. I have, therefore, had this third arm so altered that it is adjustable. The efficiency of the Lowman clamp is thus, I believe, increased.

The second instrument that I wish to present is a bone lever. This consists of a flat, straight piece of steel to be used in bringing the over-lapping fragments together by leverage. The end of the lever introduced between the bones is rough on one side and smooth on the other. The rough side prevents the bone from slipping off the lever, and the smooth side allows the lever to be removed from between the bones more readily than if both sides were rough. The lever is grooved so that the bones may be easily approximated by pressure if the lateral displacement is great. I find this lever made in two sizes very helpful in replacing bones of the forearm and in fractures of the tibia.

The third instrument which I wish to present is a hook which is patterned after the Lambotte hook. This hook is made in three sizes. The hook is employed to draw the fragment of bone toward the operator and toward the wound through which the operation is being done. It is also used to steady the fragments upon which any operative work is being done. Smaller hooks are applicable to operations upon the ulna and radius, and the larger hooks for operations upon the tibia and femur.

These instruments are the outgrowth of certain necessities that have arisen in connection with the operative treatment of fracture cases. I believe that it is important for the surgeon to have all the necessary instruments that facilitate the various steps of any operative procedure. These three instruments, therefore, have been presented to the Society because they have been found helpful in the operative treatment of fractures.

THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING OF WEDNESDAY, JANUARY 6, 1915, AT 8 P. M.

DR. RICHARD H. HART, in the chair.

GASTRIC ULCER.

DR. JOHN B. DEEVER: The experience of the last few years of activity in gastric surgery has shown

both brilliant successes and dismal failures. It has been shown that no one operation will fit all cases, that variations in situation, chronicity and complications demand different methods of treatment until finally, by the slow evolution of clinical experience and observation, we are in a position to draw some conclusions regarding principles which should underlie the surgical treatment of gastric ulcer.

I believe the appendix is responsible for liberating the infection which in turn causes gastric as well as duodenal ulcer and other forms of upper abdominal disease in an overwhelming majority of instances. In my clinics at the German Hospital I have observed the almost constant association of chronic appendicitis and gall bladder diseases with duodenal and gastric ulcer. The focus of infection need not necessarily be the abdomen, though here apparently the association is more marked. That infection from the mouth may be the exciting cause of gastric ulcer is true perhaps in a small percentage of cases. The common association of chronic diseases of the appendix with gastric and duodenal ulceration is significant of a causal relation between the two through toxic products liberated from the appendix. We are equally concerned with factors preventing the healing of the ulcer, among which may be mentioned, the condition of the general health, the continuance of exciting causes in the muscular activity of the stomach, the action of the gastric juice upon eroded surface and infection implanted upon the bed of the ulcer. There is abundant evidence of a strong natural tendency to the healing of simple gastric ulcers in the human. Well directed medical treatment will succeed in healing most acute ulcers and a fair percentage of those on their way to chronicity, and in the absence of severe complications medical treatment should be given a fair trial before resort to surgery. Medical treatment in the chronic type of gastric ulcer must be radical, demanding from four to eight weeks' rest in bed and most careful feeding, for in the quiescent stage many a patient has been placed asleep in the eternal rest of the grave. We must not forget the marked tendency of cancer to develop on a chronic ulcer base, and all such cases are to be rated as the most disastrous medical failures. The clinical indications for operation are cases complicated by perforation, recurrent hemorrhage causing material drain upon health and persistent indigestion which does not yield to a fair trial of medical treatment. By this I do not mean indefinite temporizing. There is a difference of opinion concerning the correct surgical procedure in perforation. It is my belief that a primary gastroenterostomy is far more likely to be followed by immediate recovery, and certainly, the prospects of future relief are much improved. The mortality of those combining gastroenterostomy with closure of the ulcer is superior to that of those practicing only closure. I have reported 30 cases of acute perforation of gastric and duodenal ulcer in which gastroenterostomy was done as a primary procedure with one death. Since then I have had an additional case with recovery. In the presence of hemorrhage the time of operation is a question of nice surgical judgment, and I have regretted my decision in both directions and can advise only in the most general terms. Since it is too hazardous to wait for the re-formation of blood,—as that is a matter of days and weeks, it seems wise to wait only for the subsidence of shock, the refilling of the blood vessels by the body fluids

and by water administered and the restoration of the blood pressure to approximately normal level. Direct transfusion of blood will occasionally have a field here. The question of the proper surgical treatment of a gastric ulcer can be decided only after the abdomen has been opened and thoroughly explored. This often means that the stomach must be opened widely. While complete excision of the ulcer may be regarded as ideal, it can seldom be accomplished. Localized saddle ulcer on the lesser curvature, ulcers strictly limited to the pylorus or small punched out ulcers elsewhere in the wall are best adapted to excision. The so-called exclusion method should be ideal in bleeding ulcers, but in many situations it is impossible of application. Ulcers high up in the fundus of the stomach may be best treated in an indirect manner by jejunostomy. A most important point to be noted is that the patient with gastric ulcer belongs exclusively to neither the physician nor the surgeon. A common cause of failure is the lack of careful supervision of the patient by the physician subsequent to operation. In his half-starved condition the patient if not restrained will go to extremes in eating. In view of the fact that prevention is better than cure and that cure is difficult and perhaps impossible, I would urge that in all digestive disorders diligent search be made for evidences of chronic disease of the appendix and treat it to a drum-head court martial at the first sign of insubordination.

DISCUSSION.

DR. JOHN H. GIBBON: I have operated upon 20 cases of perforation with a mortality much higher than that of Dr. Deaver and much nearer that usually accorded this operation. I have, however lost only one patient operated upon within the first twenty-four hours following operation. From what Dr. Deaver has said I judge that his cases were mostly, if not entirely, early ones. I think some of these perforations are overlooked and the cases looked upon as cases of general peritonitis and are not operated upon because of the advanced stage. I cannot agree with Dr. Deaver upon the value of the x-rays, and would place my reliance in diagnosis upon (1) history; (2) x-ray study, especially with the fluoroscope; (3) gastric analysis. W. J. Mayo places the x-ray study first, history second, and gastric analysis third. Dr. Deaver and I disagree concerning gastroenterostomy in the presence of perforation. I should, however, do the operation in cases in which there is marked obstruction of the pylorus from the infolding of the ulcer and in which it is possible to operate early. There is certainly no objection to doing the ideal operation, except in cases in which much time has elapsed between the time of perforation and that of the operation.

DR. JOHN B. ROBERTS: The point made by Dr. Deaver concerning the etiology of gastric and duodenal ulcers has interested me very much. My attention was called to this matter years ago because I lost a patient upon whom I had done suprapubic cystotomy for stone, with sudden collapse ten days after operation. Autopsy showed a large perforated gastric ulcer, of which I had no knowledge and which came, probably, as the result of the cystotomy. A few years ago I had a case of ulcer in the duodenum following traumatic rupture of the bladder. In looking up the subject I was surprised at the large number of cases on record. There were at least a dozen cases of ulcer of the stomach and duodenum the result either of disease of the abdomen

or of operative attacks upon the abdomen. I think Dr. Deaver is right in respect to the probable causative relation between suppurative disease of the appendix, or of the gall bladder, and these gastroduodenal ulcers. His paper is to my mind a very important contribution to what I would call clinical pathology.

DR. JAMES TYSON: In my experience the diagnosis of gastric ulcer when not checked off either by operation or autopsy has not been very satisfactory. On the other hand ulcers are sometimes found in the stomach at autopsy when no symptoms have been present before death. Only a few of the digestive symptoms have a distinctive value. Perhaps the most valuable one is copious hemorrhage. The presence of a palpable tumor is good evidence of gastric cancer, but the possibility of mistake is illustrated in the case of a man who came to me several years ago with history of recurring hemorrhage and evident tumor in the right hypochondrium in whose case autopsy showed gastric ulcer.

DR. WILLIAM E. HUGHES: Dr. Jopson has reminded me of an exceedingly interesting case of duodenal or gastric ulcer in which the only symptom was profuse hemorrhage. The man died during operation as the result of a very peculiar hernia through the diaphragm because of which practically all of the abdominal contents were in the chest. A point of diagnostic interest to me is that almost all cases of perforating ulcer of duodenum and stomach that I have seen have had free gas in the peritoneal cavity within a few hours of perforation.

DR. JOHN H. JOPSON: The patient mentioned by Dr. Hughes and which he referred to me had been seen by him in consultation with the physician, Dr. Ellis, and an immediate operation advised. The patient was in good condition but took the anesthetic badly. He became cyanotic and there was persistent rigidity of the abdominal muscles. When the abdomen was opened the stomach was found enormously distended and there was a hard, circumscribed and stenosing ulcer of the first portion of the duodenum. It was proposed to do nothing but gastro-enterostomy. The small intestine was not found in its usual site; the cecum and appendix were found high up under the mesocolon near the median line just below the stomach. Examination of the peritoneal cavity showed an entire absence of the jejunum and ileum, excepting the terminal portion of the latter, which could be traced for a few inches from the ileocecal valve when it blended with the posterior peritoneum. I thought of thoracic hernia and passed my hand above the stomach and liver and around the diaphragm on both sides, but felt no opening. I then opened the lesser peritoneal cavity through the transverse meso-colon and passed my hand into it, behind the stomach. This was followed by a profuse hemorrhage, both from the retro-colic vessels and from the perforation which this slight manipulation opened up in the posterior wall of the ulcer. From this opening a large amount of dark, liquid blood and solid food particles kept pouring out in a flood which could not be controlled in spite of repeated attempts at suturing, and the patient succumbed. After lifting the stomach from the abdomen we found a hernia of the entire small intestine, excepting its beginning and termination, through an opening in the left side of the diaphragm, posterior to the stomach, into the thoracic cavity. Some of the coils of the intestines were adherent so that they could not be pulled down into the abdomen. The condition was evi-

ently congenital as the edges of the opening were thick and rounded, and, in combination with the obstructing bleeding perforating ulcer, rendered the patient's condition incurable.

Dr. JOHN B. ROBERTS: In connection with the case mentioned by Dr. Jopson I might say that I saw at the Mayo Clinic a case of congenital thoracic hernia. Dr. W. J. Mayo operated upon a young man for curious vomiting attacks. To his surprise and the astonishment of all of us he found that the stomach was up in the left chest.

Dr. DEEVER, closing: I cannot agree with Dr. Gibbon that seeing these cases early explains the low mortality; while some of my cases were operated upon within 24 hours, in one the operation was as late as thirty-six hours. The chief object of gastroenterostomy is to get these patients well promptly; and, secondarily, to keep them well. I would urge the cross-roads surgeon not to do gastroenterostomy; the small country hospital has not the best equipment for the procedure. I am not a strong advocate of the x-ray in diagnosis of these cases, but would prefer to open them up. When the ulcer has brought about a pyloric stenosis, of course, you can make a diagnosis; but then, according to Mayo, it is too late,—90% plus of gastric ulcer undergoing carcinomatous change. Dr. Gibbon and I do not always agree, but we seem to agree tonight upon the etiology. Dr. Tyson rather hit the bull's eye when he said that, exclusive of the post-mortem slab at the operating table, he thought the diagnosis of gastric ulcer was not satisfactory. The case mentioned by Dr. Hughes and Dr. Jopson is very interesting; had the man had his abdomen opened up a few years before they would not have had this pathology to report.

Book Reviews.

Psychanalysis: Its Theories and Practical Application. By A. A. BRILL, Ph. B., M.D., Chief of Clinic of Psychiatry, and Clinical Assistant in Neurology, Columbia University Medical School; Chief of the Neurological Department of the Bronx Hospital and Dispensary. Second edition. Philadelphia and London: W. B. Saunders Company. 1914.

This book gives in fairly brief form about as good an idea of the theories of Freud in regard to the nature and mode of origin of the psychoneuroses as is to be found in English. It also takes up the more recent extension of the Freudian theories to the psychology of wit and everyday life. Whether or not one can accept all these views, the knowledge of them is of great importance to every physician desiring to understand recent literature on the psychoneuroses. This second edition adds new material upon artificial dreams, the unconscious factors in neuroses, collecting manias, pathologic homosexuality, and fairy tales as a determinant of dreams and neurotic symptoms.

A Text-Book of Diseases of the Nose and Throat. By D. BRADEN KYLE, A.M., M.D., Professor of Laryngology and Rhinology, Jefferson Medical College, Philadelphia. Fifth edition. Thoroughly revised and enlarged. Octavo of 856 pages with 272 illustrations. Philadelphia and London: W. B. Saunders Company. 1914.

This has for fifteen years been one of the standard American text-books of the diseases of the nose and throat. It has grown with successive editions from 650 to 850 pages. It is somewhat large and complex for the medical student, but a useful and reliable book of reference for the specialist and general practitioner. The author is a pathologist and teacher, as well as a practitioner of large experience. He maintains a systematic survey of all contributions to the subject in the medical press, but uses only such as appeal to him. He gives due credit to the work of others, but does not hesitate to give his own views, often in considerable detail. It is not always easy to follow the intricacies of etiology and pathology, nor to separate undoubted facts from less well authenticated theories. The more practical subjects are well presented. Medical treatment is abundant and hopeful and surgical procedures are well described. The author has done much work on the chemistry of the saliva, and believes that important questions, especially in hay fever and other inflammatory processes of the mucous membrane, are caused by an altered chemical composition of different secretions. The fourth edition appeared seven years ago, and is consequently to be discarded in favor of this edition, which has been thoroughly revised and enlarged to include recent progress in the science and art of the specialty.

Differential Diagnosis. Volume II. By RICHARD C. CABOT, M.D., Philadelphia and London. W. B. Saunders Company. 1914.

In the second volume of "Differential Diagnosis," Dr. Cabot uses the same method as in the first, namely, the discussion of what he calls the presenting symptom through illustrative cases. In this volume he takes up nineteen common symptoms, such as abdominal tumor, vertigo, diarrhea, hemoptysis, pallor. As an introduction to the discussion of each symptom, Dr. Cabot presents a graphic table of the relative frequency of the causes of each particular symptom and gives a short preliminary discussion. In general, however, the illustrative cases, which have been very carefully selected, make their own discussion, illuminated here and there by some clear cut comment by Dr. Cabot. It is an interesting as well as instructive book and is a happy contrast to the usual method of discussing differential diagnosis.

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NEUROLOGICAL HOSPITALS.

THE tendency to maintain hospitals for special branches of medicine appears to have become well established. There are, in every part of the country, hospitals for women, for obstetrics, for children, for cancer, for mental disease, for contagious disorders and for various other branches of the broad medical field. For some reason the neurological side of medicine has not fared so well. This doubtless has been due largely to the fact that disorders of the nervous system, exclusive of mental disease, have been regarded as an integral part of general medicine and so have been included among the patients received in the wards of a general hospital. The importance of the subject has been so far recognized that out-patient departments have been widely established in connection with general hospitals and it must now be considered that such departments form one of the most important elements in the hospital system. In general, however, the hospitals have been nig-

gardly in granting beds for the special study of diseases of the nervous system. This has been doubly unfortunate because, with relatively few exceptions, distinguished physicians in this country have not at the same time been distinguished neurologists, with the natural result that fundamentally important work on the nervous system has not come from the wards of our general hospitals. This is the more to be regretted since the field is one demanding intensive study and men are waiting prepared to give time to such study if proper facilities comparable to those afforded other branches of internal medicine could be secured. There are naturally many advantages in carrying on such investigations in connection with the work of a great general hospital but with the temper apparently prevailing, those primarily interested in the nervous system must look elsewhere for really adequate hospital facilities. We may expect, therefore, unnecessary as it would seem to be, to see hospitals devoted primarily to diseases of the nervous system established in our larger communities, with other branches of medicine subordinated to these disorders. There seems no adequate reason why such hospitals should not be established with a staff composed of men whose knowledge of and interest in the nervous system is paramount, and others as may be necessary to complete the medical and surgical needs of the patients under treatment. In this connection it is always a satisfaction to call attention to the New York Neurological Institute established for the purpose of demonstrating the necessity of such institutions in our larger centers of population, if completely adequate work in diseases of the nervous system, comparable to that accomplished in other departments of medicine, is to be realized. The fifth report of the New York Institute is before us. In his statement to the trustees, Dr. Frederick Peterson, secretary of the medical board, makes the following statement:

"Begun in 1909 as an experiment to determine the need of a special hospital for nervous diseases, each succeeding year has served to demonstrate more and more forcibly the importance of such an institution in New York. The fact which led the founders to this undertaking was briefly: that there is no hospital of the kind on this continent; that general hospitals do not and cannot provide adequately for the care and treatment of nervous disorders; that these par-

icular diseases require, both for diagnosis and treatment, a special knowledge which the general practitioner, with the constant growth of medical science in so many directions, cannot be expected to attain, and particular therapeutic methods which can be made accessible only in a specially equipped hospital; and finally that the vast number of cases of nervous disease, particularly among the poor, was for these reasons being everywhere neglected."

Apart from the statement that general hospitals cannot provide adequately for the care and treatment of nervous disorders, which does not appear to be proved, since no systematic attempt has ever been made to bring it about, we are in entire accord with what Dr. Peterson says. If the ideal of adequate wards, granting the same privileges to the physicians in attendance as are enjoyed by the internists, cannot be secured, the time must come when institutions like the Neurological Institute of New York must be established. Certainly the example set by the New York institution is one which other cities may well emulate. We have in its arrangement a complete hospital, perfectly equipped to care incidentally for surgical cases, for so-called medical cases as they may arise, but primarily for the neglected disorders of the nervous system, both functional and organic in character. It may be that neurology, as an integral department of medicine, may ultimately cease to exist, absorbed into the field of general medicine or surgery or psychiatry, as the case may be, but for the present this consummation, whether desirable or not, is far from being attained. It must be apparent to any candid observer that a large uncultivated field exists which would be far more productive if greater facilities were offered at our hospitals or, in lieu of them, at privately established institutes, whereby men of promise could be encouraged to enter upon work upon the nervous system with expectations of promotion and recognition commensurate with the fundamental importance of the subject.

been attributed to high systolic blood-pressure, particularly in association with arteriosclerosis, which is apparently now becoming recognized as not simply a process in which hardening of the arteries occurs, but a general cardiovascular disease, the progress of which is apt to be characterized by chronic myocardial degeneration and chronic nephritis, as well as by arterial sclerosis. The general condition may be of slight severity, and this local one marked. High blood-pressure and arteriosclerosis are by no means synonymous or coextensive, nor is high blood-pressure necessarily an accompaniment of advanced life. It is quite possible also to have a low blood-pressure in connection with arteriosclerosis, as was shown by an investigation of some twelve thousand veterans at the Gettysburg semi-centennial celebration last July, whose ages ranged from 66 to 98 years. About nine out of ten had arterial sclerosis, but only about one in ten were found to have high blood-pressure.

Various writers have recently called attention to the exaggerated estimate referred to, and some prominent internists are now expressing their satisfaction of what they term "the passing of high blood-pressure," in so far as it has been a fetish. The present situation was well stated by Harlow Brooks in a paper read some months ago before the Medical Association of the Greater City of New York. For from five to ten years past, he said, more or less routine pressure determination had been recorded by most physicians, and it seemed to him that we were now prepared to discuss, from the standpoint of experience, our findings in this respect, and their apparent significance in clinical medicine. At first the enthusiasts had no doubt greatly overrated this significance, and this spirit was still notable in the lay public and press; but unquestionably the pendulum of professional opinion was now well on the reactive swing. He summarized his opinion as follows: High blood-pressure is not a cause, but usually a result; it is not a disease, though the evidence of disease. It is not pathological, but usually, if not always, physiological in intent; it tends more to prolong life than to shorten it. When its cause cannot be removed, it is not to be treated, but to be maintained. This estimate, it is to be understood, refers to the systolic blood-pressure, to observations of which examination of the blood-pressure for clinical purposes was until quite recently almost exclusively limited. It is now becoming quite generally recognized that in order

THE SIGNIFICANCE OF ABNORMAL BLOOD-PRESSURES.

THERE can be little question that of late years, largely because it was the prevailing medical fashion of the day, far too great importance has

to appreciate the proper significance of blood-pressure variations it is necessary to study them in the three phases of systolic pressure, diastolic pressure, and pulse-pressure; the first being the measure of the force of the ventricular contraction, modified by the arterial resistance and less important factors, the second representing the residual pressure maintained by the tonicities of the arterial system, and the third being the difference between the other two.

In a recent contribution on the clinical significance of variations in these different pressures (*International Clinics*, Vol. 1, Series 25) Dr. Edward E. Cornwall of Brooklyn, N. Y., known as an experienced and keen observer, states, very rightly, that this is a particularly difficult subject with which to deal, not only because it is comparatively new and has not yet been thoroughly studied, but because of intrinsic difficulties, since the possibilities of error in observation and of confusion of data are present in an unusual degree. A very useful, though only partial, index to the efficiency of the circulation, however, is afforded, he has found, by the systolic and diastolic pressures considered in their numerical relations—that is, the difference between them, the pulse-pressure, and the relation of this to the pressure scale. The pacemaker for the pulse-pressure, at least in conditions of disease, seems to be the diastolic pressure more often than the systolic. The following are among the conclusions which he has reached, largely as the result of his personal observations: A low systolic pressure, provided the diastolic pressure is sufficiently low to provide an adequate pulse-pressure, does not necessarily mean poor circulation, though it does seem to imply a diminished reserve power of heart. A comparatively low systolic pressure with a comparatively high diastolic pressure and a comparatively small pulse-pressure may mean myocardial weakness with chronic nephritis, arteriosclerosis, chronic toxemia, or arterial spasm. A low diastolic with a comparatively high systolic pressure and an excessively large pulse-pressure may mean several things: *e.g.*, a purely functional condition, a compensated aortic regurgitation, myocardial degeneration without much arterial sclerosis or chronic nephritis, or vasodilatation from any cause. The diastolic pressure seems to be more stable than the systolic, and to show less often marked variations from its normal without definite pathological cause, while in conditions of disease the systolic pres-

sure seems to accommodate itself to the diastolic more readily than the diastolic to the systolic. The diastolic pressure seems to indicate the peripheral resistance, which in many instances is determined by definite pathological conditions, and movements of this pressure beyond the normal range to be a sufficient cause for enlargement of the pulse-pressure if an adequate circulation is to be kept up. A diastolic pressure of 100, or higher, if persistent, or a systolic pressure over 140 in a young or middle-aged adult, suggests disease, while a pulse-pressure as small as 20 or as large as 60, if persistent, may be pathological. A fall in the systolic pressure in response to an exercise test, immediately or after a short preliminary rise, and a delay in its return to normal, and also at the same time a failure of the pulse-pressure to show a substantial increase, suggest myocardial weakness. Chronic nephritis seems regularly to be attended with a high systolic and a large pulse-pressure, an adequate condition so long as the myocardial reserve power holds out. Arteriosclerosis, as a rule, seems to produce marked elevation of the blood-pressure only when the blood supply of a vital region is disturbed or when the aorta is affected. The neurotic factor in the patient and the personal factor in the observer may require considerable allowance to be made for them in the interpretation of blood-pressure findings, and it is necessary to be constantly on guard against being misled by such findings, and especially against ascribing too much importance to them when unsupported by other evidence of disease.

In the latest communication on the clinical significance of blood-pressure (*Medical Record*, March 20, 1915) Percival Nicholson also insists on the importance of a complete blood-pressure picture, stating that the systolic reading alone tells less than half the true situation. In hypertension cases, he remarks, it is not the lowering of blood-pressure which is important, though there are a few exceptions. These he gives as follows: (1) In cases where the pressure is sufficiently high to threaten apoplexy (250 to 300 m.m. Hg.) an immediate reduction of this usually by venesection, is indicated; (2) in hypertension with failing compensation and an overloaded right heart, as in pneumonia, an immediate venesection will often save the patient; (3) angina pectoris presents an urgent indication for the use of vasodilators; (4) in cases in which operative measures are demanded, where

the height of the pressure is such that the administration of an anesthetic is dangerous, a preliminary lowering of it will often permit of a safe operation; (5) in patients with cataract, and having hypertension, a preliminary bleeding will so lower the pressure that a safe enucleation may be performed and the danger of post-operative intra-ocular hemorrhage avoided.

THE SEVENTH PAN-AMERICAN MEDICAL CONGRESS.

THE seventh Pan-American Congress of Medicine is to meet at San Francisco during the week of June 17 to 21 inclusive, assembling pursuant to an invitation by President Wilson, issued in accordance with an act of Congress approved on March 3, 1915. This tardy action of Congress in sanctioning an important medical meeting leaves but short time for preparation and increases the urgent need of coöperation in the profession, to ensure its success.

The first Pan-American Congress was held in the United States in 1893, and the five succeeding congresses have been in the various Latin-American countries. It now devolves upon the physicians of the United States to administer this seventh congress, which, in view of the European war, will presumably be the largest international medical meeting of the year.

The countries and colonies embraced in the congress are the Argentine Republic, Bolivia, Brazil, Canada, Colombia; Cuba, Chile, Costa Rica, El Salvador, Ecuador, Guatamala, Honduras, Haiti, Hawaii, Mexico, Martinique, Nicaragua, Panama, Paraguay, Peru, Santo Domingo, United States, Uruguay, Venezuela, British Guiana, Dutch Guiana, French Guiana, Jamaica, Barbadoes, St. Thomas and St. Vincent. The organization of the Congress is perfected in these countries and the majority of them have signified their intention to be represented by duly accredited delegates.

The Congress will meet in seven sections, *viz.* (1) medicine; (2) surgery; (3) obstetrics and gynecology; (4) anatomy, physiology, pathology and bacteriology; (5) tropical medicine and general sanitation; (6) laryngology, rhinology and otology; (7) medical literature.

All members of the organized medical profession of the constituent countries are eligible and are invited to become registered. The member-

ship fee is \$5.00 and entitles the holder to a complete set of the transactions. Advance registrations are solicited and should be sent with membership fee to the treasurer, Dr. Henry P. Newman, Timken Building, San Diego, California.

The occasion is particularly favorable for a large attendance, not only on account of the Panama-Pacific Exposition at San Francisco and the California Exposition at San Diego, but because this Pan-American Congress immediately precedes the annual meeting of the American Medical Association. Dr. Charles A. L. Reed of Cincinnati is president of the Congress, Dr. Raymond Guiteras of New York City is secretary-general, and Dr. Harry M. Sherman, of San Francisco, chairman of the committee of arrangements.

BOSTON QUARANTINE TRANSFER.

At its meeting on Monday, March 29, the Boston City Council finally passed the order for the transfer of the local quarantine station from municipal to federal control. By this order the mayor is authorized to execute, with the federal government, a lease of the quarantine property, whose terms must be approved by the council before they become effective. Under this lease the quarantine station will be administered by the federal authorities until congress shall appropriate a sum sufficient to permit the purchase of the entire property. The price for which the property shall ultimately be sold is to be determined by a board of arbitration, of which one member is to be selected by the national government, another by the City of Boston, and the third by these two. As soon as the preliminary lease is executed, all the powers of the Boston Board of Health relative to the maintenance of the Quarantine Station become automatically abolished.

THE BOSTON SURGICAL SOCIETY.

IN this week's issue of the JOURNAL we are pleased to publish the first report of the transactions of the Boston Surgical Society, a new medical organization recently incorporated in this city. The first meeting of this society was held in February and all its papers and proceedings are to appear exclusively in the JOURNAL. It has been the policy of the JOURNAL particu-

larly to publish the transactions of local and New England medical societies, and we are glad to be able thus to present to our readers the important work of a new organization among this number, especially one whose membership affords so high promise of worthy contribution to medical literature.

MEDICAL NOTES.

COLD WEATHER BRINGS PNEUMONIA AND GRIP IN NEW YORK.—The most noteworthy feature of the mortality during the past week was the large increase in the number of deaths reported from pneumonia, the total number being 380 as against 305 during the corresponding week of 1914. This was undoubtedly due to the sudden general increase in the prevalence of influenza (grip), the number of deaths from this cause being 28 as against 18 in the corresponding week of 1914. Influenza probably had something to do also with the increase of 19 deaths from pulmonary tuberculosis. The mortality from other infectious diseases was considerably below that of 1914, especially among the deaths reported from measles, scarlet fever, diphtheria and croup and diarrheal diseases.

The death rate of children under five years of age during the past week was considerably lower than that of the corresponding week of 1914, there having been 55 fewer deaths reported.

There were 1750 deaths in this city last week, a death rate of 15.72 per 1,000 of the population as against 1768 deaths and a rate of 16.52 during the corresponding week of 1914. This is a decrease of .8 of a point, equivalent to a relative decrease of 89 deaths. The death rate for the first thirteen weeks of 1915 was 14.22 per thousand of the population as against 15.60 for the corresponding period of 1914, a decrease of 1.38 of a point.

SMALL-POX IN NEW JERSEY.—Report from Melville, N. J., on March 24, states that there are at present thirty-five cases of small-pox in that city, which numbers about 14,000 inhabitants. All schools, churches and other places of public assembly have been closed and extensive vaccination of the unprotected population is being initiated.

TYPHOID MARY AGAIN ISOLATED.—On March 27, Miss Mary Mallon, familiarly known as Typhoid Mary, who is probably the most celebrated "carrier" in medical history, was again apprehended by the New York Board of Health and returned to quarantine for an indefinite period. She has recently been working as a cook at the Sloane Maternity Hospital where twenty-five cases of typhoid fever, with two deaths, have resulted.

EUROPEAN WAR NOTES.—On March 26 a financial report was issued in London by the American Commission for relief in Belgium, showing

that already food stuffs to the value of \$20,000,000 have been delivered in Belgium since the commission began its work. Further supplies valued at \$19,000,000 are now on their way to the country. Over \$1,000,000 worth of clothing has also been distributed.

"Of the grand total, \$8,500,000 was provided by benevolent contributions, either of food or cash, and the balance of \$30,500,000 was provided by banking arrangements set up by the commission.

"The benevolent contributions consisted of \$2,600,000 in cash and \$5,900,000 in foods. Of the benevolent contributions the United States provided \$4,700,000.

"The contributions from the United States include in round numbers; New York, \$1,300,000; Rockefeller Foundation, \$1,000,000; Northwestern Millers, \$550,000; California, \$280,000; Pennsylvania, \$260,000; Kansas, \$240,000; Iowa, \$150,000."

BOSTON AND NEW ENGLAND.

MASSACHUSETTS HOSPITAL APPROPRIATIONS.—There is at present pending before the Massachusetts General Court a bill providing an appropriation of \$1,000,000 for the construction of a metropolitan hospital for the insane on land already purchased for this purpose in Waltham, Mass. The bill is at present in the hands of the committee on public institutions.

Large hospital appropriations, aggregating over \$2,000,000 have already been made this year by the state legislature for hospital purposes, as follows: Norfolk State Hospital, \$117,137.55; School for the Feeble-Minded, \$291,878.23; Rutland Sanatorium, \$149,707.51; Gardner Colony, \$160,299.36; North Reading Sanatorium, \$68,945.42; Foxborough Hospital, \$103,200.37; Lakeville Sanatorium, \$89,043.33; Westborough Hospital, \$254,512.01; Westfield Sanatorium, \$96,977.64; Hospital School, \$41,901.51; Worcester Asylum, \$349,344.17; State Farm, \$359,600; Penikese Hospital, \$27,950.

On April 3 the totals of the principal American relief funds for the European War reached the following amounts:—

	N. Y.	N. E.
Belgian Fund.....	\$1,010,552.55	\$242,795.55
Jewish Fund	598,943.26	55,660.52
Red Cross Fund.....	476,840.75	117,208.58
Amer. Ambulance Hosp....	383,067.02	
Committee of Mercy.....	140,143.16	
Prince of Wales Fund....	115,847.23	
Polish Fund.....		39,643.42
St. George's Fund.....	32,604.39	
British Fund.....		25,539.62
Persian Fund.....	15,659.00	

BOSTON HOSPITAL CONCERTS.—The concerts of the Boston Hospital Music Fund for April have been announced as follows:

April 6—Carney Hospital, 3 P.M.

April 11—St. Luke's Home for Convalescents, 2 P.M.

April 18—Boston Home for Incurables, 2 P.M.

April 27—N. E. Peabody Home for Crippled Children, Hyde Park, 3 P.M.

REPORT OF THE BOARD OF HEALTH OF BROOKLINE.—The report of the Brookline Board of health for the year 1914 gives an interesting account of the administration of public health that community organized under the several departments of vital statistics, bacteriological department, the sanitary agent, the agent for the inspection of animals, the agent for the inspection of provisions and milk, the board of health hospital and the mosquito and fly suppression. Vital statistics show that the mortality rate has decreased from 12.85 per 1,000 inhabitants to 2.49. Plans for the erection of a tuberculosis hospital have been approved and the building is to be constructed as soon as possible.

MASSACHUSETTS HOMEOPATHIC HOSPITAL.—The annual graduation exercises of the Massachusetts Homeopathic Hospital Training School for nurses were held in Boston on March 31. Diplomas were awarded to a class of 34 pupil candidates.

BOSTON LYING-IN HOSPITAL.—The recently published eighty-second report of the Boston Lying-in Hospital records the work and progress of that institution for the calendar year 1914. During this period 789 patients were admitted to the hospital and 1944 were taken care of in their own homes. One thousand seven hundred and ninety-nine patients were treated in the puerperium clinic. The expenses of the hospital exceeded the receipts by \$1,799.23. Thirty-five pupil nurses were graduated from the training school. Last spring a site of land for a new hospital building was purchased near the Harvard Medical School and it is hoped that funds will soon be raised for the erection of the hospital for which the plans have already been drawn. Donations are earnestly invited for this purpose and for the running expenses of the hospital in its present quarters.

PROPOSED CAMBRIDGE CITY HOSPITAL.—Plans for the proposed new Cambridge City Hospital have recently been completed and provide for a large institution of 150 beds to be erected on a site on Cambridge street, bounded by Line street and Camelia avenue.

"At the extreme end of the lot in Line street will be a building containing an engine-room, a boiler-room, from which heat will be transmitted to the hospital by subway; a small morgue, an autopsy-room, a pathological laboratory, a garage for ambulances, sleeping quarters for orderlies and a laundry.

"The new buildings will be of fireproof construction, with exterior walls of waterstruck brick and cast-stone traceries. The roofs will be of slate, with copper trim. In general style the buildings will be Colonial.

"In the basement of the main hospital building there will be an out-patient department and emergency rooms, reached from Camelia avenue; an x-ray department, a dining-room for domes-

tics and orderlies, space for storage, and the hospital kitchen and service rooms.

"The ground floor of the main building, with an entrance in Cambridge street, will contain the administration rooms, dining-rooms for doctors and nurses, diet kitchens, emergency wards, male and female medical wards, the apothecary's room, trustees' room, and at the end of each wing in Cambridge street, a solarium.

"There will be solaria similarly located on the second floor, besides male and female surgical wards, medical and surgical wards for children, a maternity ward, and etherizing, operating and recovery rooms. On the third floor, will be a living-room and sleeping quarters for internes."

It is estimated that this structure will cost at least \$175,000 and its equipment an additional \$30,000. The legislative act providing for this hospital authorized the borrowing of \$150,000 beyond the city's debt limit. The remainder of the amount needed must be met by special appropriation.

FOOT AND MOUTH DISEASE IN CONNECTICUT.—Report from Hartford, Conn., states that on March 24, fifteen towns in New London County were placed under quarantine by the State Cattle Commissioner on account of recent out-breaks of the foot and mouth disease. The towns affected by this order, in which the disease has been discovered, are Bozrah, Franklin, Griswold, Groton, Ledyard, Lisbon, Montville, New London, Norwich, North Stonington, Preston, Sprague, Stonington, Voluntown and Waterford.

REPORT OF THE INFANTS' HOSPITAL.—The recently published thirty-second annual report of the Infants' Hospital of Boston records the work of that institution during the past year and calls attention to its urgent need of funds. Dr. George S. Derby, the medical director, in his report says:

"Our new building was planned not only for the care of sick babies, but also as a model for the instruction of the public, and but little provision was made for private patients. Owing, however, to the lack of funds, it was found imperative to increase our income by the admission of a number of paying patients. To accommodate these, it was necessary to use the model nursery, the premature ward and the house officers' quarters, and to make certain other rearrangements in the hospital. The needs of every hospital are many, and the Infants' forms no exception. First among them we need funds to open our second ward. This is less a need of the hospital than of the general community. We need funds for a stenographer to work on the hospital records, and to relieve the assistant secretary and to release her for other work. We need a general helper to do technical work in the laboratory and in connection with the x-ray department."

Dr. Charles Hunter Dunn, the physician-in-chief, says in part in his report:

"The cases which form the majority of those which have been treated in the new hospital represent the worst types of disease seen in infancy. There is now a very close coöperation among the various institutions treating babies. From the Milk and Baby Hygiene Clinics, the sick babies are referred to the out-patient departments of such hospitals as the Children's, the Boston Dispensary, the Massachusetts General, and others. From these, the worst cases are selected for admission to hospital wards. Except during the short time in summer, when the Floating Hospital is open, there is no other hospital which has so many beds available for babies under two years of age as the Infants' Hospital. Consequently, a large proportion of these bad cases, chosen by a careful process of selection, comes to us. I believe that our results have been very good, considering the character of the cases we have treated. There are still not enough beds available in Boston for the care of all these severe cases needing hospital treatment.

"The work of the social service department has been of inestimable assistance to the work of the medical staff. The investigating and improving of the home surroundings from which our babies come, while they are in the wards, so that they will not go back to the same conditions, is a most important factor in making the work done for the babies in the hospital of permanent benefit to the community. Also, we are enabled, through the social service department, to follow the final results of our treatment and to learn when we were right, and when wrong. This ability to check up the final results of our work will, in time, greatly increase our efficiency."

HOSPITAL BEQUESTS.—The will of the late Dr. Hasket Derby of Boston, filed on March 24 in the Suffolk Probate Court, contains a bequest of \$5,000 to the Carney Hospital.

The will of the late Calvin W. Capen of Dedham, Mass., which was filed in probate court on March 24, leaves a residuary bequest of about \$50,000 to the Elizabeth Capen Fuller Hospital of that town.

Obituary

WILLIAM MURRAY DOBIE, M.D.

Dr. William Murray Dobie, who died at Chester, England, on March 12, was born at Liverpool in 1828. He received his education at the University of Edinburgh, from which he obtained the degree of M.D. in 1849 with honors and the award of a gold medal in surgery. He served as resident physician and surgeon at the Royal Infirmary under Syme and Lister, and after completing his studies subsequently in Berlin, Paris and Dublin, settled in the practice of his profession at Chester.

In 1867, during the epidemic of cholera in that city Dr. Dobie rendered distinguished and courageous service and was largely instrumental in checking the pestilence. In connection with this event he contributed a valuable article on the use of chlorine in the treatment of this disease. In 1875 Dr. Dobie was elected honorary physician to the Chester Infirmary, which he served actively for twenty years, and upon his retirement in 1895, he was elected its consulting physician. He was also honorary consulting physician to the Wrexham Infirmary and to the Royal Alexandria Hospital at Rhyl. He was for many years private physician to the late Mr. William E. Gladstone, whom he attended in his last illness.

In addition to his active medical life, Dr. Dobie maintained an alert and constant interest in other branches of science whose study was his avocation. He was particularly interested in astronomy and microscopy. In 1849 he discovered and described on the moon a new crater which still bears his name. In 1850 he contributed to the *Annals of Natural History* a description of two new species of floscularia and to the Royal Medical Society of Edinburgh a paper on the cilia of grantia. His thesis for his medical degree dealt with the histology of muscular tissue in which his name is still preserved by the term Dobie's line. With Canon Kingsley he was one of the founders of the Natural Science Society and subsequently became its president. He was later awarded the Kingsley medal for the advancement of natural science.

For many years Dr. Dobie had been a familiar and beloved figure in the medical profession and among the communities of Cheshire and North Wales, where he was universally desired by physicians and patients as a consultant. The *British Medical Journal* in its obituary of Dr. Dobie says of him, "He earned and retained the esteem and affection of everyone with whom he came in contact. His skill and success as a physician abundantly bore out the promise of his early scientific training and accomplishment."

Dr. Dobie is survived by his widow and by five daughters and five sons, three of the latter of whom are now medical practitioners in Cheshire.

Miscellany.

MILK LEGISLATION AND INVESTIGATION IN MASSACHUSETTS.

IN the issue of the JOURNAL for Feb. 25, we commented editorially on the labor clean milk bill and in the columns of the JOURNAL for Mar.

25 we published a further editorial, stating the official attitude of the Massachusetts Medical Society on this important subject. At a recent hearing on this bill held before the committee on public health the bill was advocated by the following persons:—

Dr. Charles F. Withington, president of the Massachusetts Medical Society; Councilman William H. Woods, representing the City of Boston; Senator Sanford Bates of Boston; Henry Sterling, representing the American Federation of Labor; George Bedinger, for the Milk and Baby Hygiene Association; George L. Richards of Malden; Representative Edward G. Morris of Boston; Dr. Enos H. Bigelow, former House chairman of the committee on public health; Mrs. Julius Andrews, for the Federation of Women's Clubs; Daniel J. Murphy, chairman of the Lawrence board of health; Howard Whitmore of the United Improvement Association; Councillor William H. Woods for the City of Boston; Dr. W. P. Bowers for the Massachusetts Medical Society.

It was opposed by representatives of the Massachusetts State Grange.

Governor Walsh has recently sent to the legislature a special message on the subject of milk industry, accompanied by a proposed resolve providing for the appointment of a special commission of three to inquire into the subject and report not later than Jan. 10, 1916. The full text of this message and resolve is as follows:—

"To the Honorable Senate and House of Representatives:

"I have already expressed to the legislature my solicitude over the depressed condition of the milk industry, and recommended that a thorough inquiry into its causes be set on foot early enough to make a remedial action possible during the present session. It is now probably too late for such an investigation to be made and its results duly weighed before prorogation, but not too late to arrange for supplying the next legislature with reliable and exhaustive data on this most important subject. Former inquiries have had mainly to do with the charges for transportation, but this should include all the important factors in the case.

"I accordingly transmit herewith a resolve indicating the scope of the inquiry that I believe ought to be made, and recommend its passage with the inclusion of any other topics that the Legislature considers pertinent.

"The facts relating to our milk supply are as startling as their causes are obscure. In the last 25 years, while our population has increased from 2,238,943 to about 3,600,000, or more than 60%, the number of cows in the Commonwealth has decreased from 200,000 to 147,000, or more than 25%. In other words, in 1890 there was one cow to every 11 persons, in 1914 only one to every 22. More than a quarter of the decrease has occurred in the last two years, which would

seem to show that the adverse conditions, instead of moderating, are growing more acute.

"Farm statistics covering the period from 1860 to 1910 show that in the counties of Berkshire, Franklin, Hampden and Hampshire, the improved farm land under cultivation actually shrunk over 50%, from 958,336 acres to 456,486; and the same proportion is said to obtain throughout the state. Meanwhile the price of milk to the consumer has soared from six cents to ten, twelve and fifteen cents a quart, although the farmers are receiving little if any more for their product than when it was retailed at half the present prices. The average distance from which milk is gathered for the metropolitan market has also greatly increased, and with it the average age of the product when consumed; both of which increases are a detriment to its food value, especially for infants and invalids.

"Such conditions cannot be a matter of indifference to the farmers of the Commonwealth, whatever statements to the contrary may be made by any who profess to speak for them. I am confident that they would almost unanimously welcome an investigation that has long been the cause of bitter complaint on their part. Surely it would be welcomed by the great mass of consumers, upon whom the increased price and lessened food value of milk have imposed no inconsiderable burden and hardship. It may even be questioned whether, if a remedy is not soon found, municipalities may not find it necessary to make the milk supply a public function, as they have already done in regard to water, and to a lesser extent in regard to the minor home comforts of gas and electricity.

"At all events, it is our plain duty as public servants, intrusted with the necessary power, not to remain inactive while this most important necessity of life is becoming more and more inaccessible to those who largely depend upon it for health and strength. At the very least, we should attempt to determine whether the people are paying more and the producer receiving less for milk than the conditions warrant, and what, if anything, can now be done to arrest the decline in our milk industry, if we cannot fully restore and develop it.

"(Signed) "DAVID I. WALSH."

On March 18, a hearing on this message and resolve was held before the legislative committee on agriculture and public health. The resolve was opposed by representatives of the state grange and of various milk producers and dealers.

"The resolve provides as follows:—

"Resolved, That the governor, with the advice and consent of the council, shall appoint a special commission of three persons, at least one of whom shall have had experience in milk production, to inquire into the causes of the present and long-standing unsatisfactory condition of the dairy industry in the Commonwealth and to

suggest legislative or other remedies therefor. The commission shall meet at various centres in the Commonwealth and shall have power to summon witnesses and papers and to administer oaths, and refusals to appear and testify or produce papers when summoned by it, shall be punishable as contempt of court. The investigations of the commission shall include the following topics, with any others that it may deem important to a complete understanding of the subject:

"(a) Whether any combination or agreement contrary to public policy artificially reduces the price paid for milk to the producer, or artificially enhances the price paid by the consumer.

"(b) By what means, if any, the number and quality of milch cows kept in the Commonwealth can be increased.

"(c) Whether, and how, the present costs of milk production may be lowered without sacrifice of quality.

"(d) Whether the grading and labelling of milk, with reference to its total solids and butter fat, the time elapsed since milking, or other circumstances affecting its food value, are advisable in the interests of producer or consumer, or both.

"(e) Whether there are wastes in distribution that may be avoided either by coöperation between producers and consumers, by the establishment of municipal receiving and distributing stations, or by otherwise reducing present duplications of service.

"(f) Whether the legislation of recent years has discriminated against the native milk producer in favor of the out-of-state producer; and whether there is need of further legislation regarding out-of-state milk, or of encouraging additional state production by premiums or otherwise.

"(g) Whether the taking over by the state of the transportation of milk to and its distribution in the larger centres of population, somewhat on the model of the parcels post, would be in the public interest.

"The members of the commission shall receive such per diem compensation for actual time of service, and may incur such expenditures for clerical assistance and other purposes as the governor and council may approve, not, however, exceeding in the aggregate for services and expenses the sum of \$10,000; and the commission shall sit forthwith and report its findings and recommendations to the legislature not later than the tenth day of January, 1916, and to the governor in part at such times as he may direct."

On March 26 the joint committees on agriculture and public health reported against the above recommendation of Governor Walsh for the appointment of a commission to investigate milk conditions in Massachusetts. These joint committees, however, reported favorably a bill

of Mayor Curley, to authorize the department of public health to expend \$35,000 annually for the sanitary inspection of dairies outside the state, where milk is produced for sale in Massachusetts.

VENEREAL DISEASE IN THE UNITED STATES NAVY.

WITHIN recent years there has been considerable popular and professional discussion relative to the subject of venereal disease and its prophylaxis in armies and navies. The secretary of the United States navy department has recently issued to all commanding officers in the United States Navy, a circular letter which represents the present attitude of the department toward this important subject. The following sections of this letter seem of particular interest to the profession at this time.

"1. The Secretary desires to call the attention of all commanding officers and, through them, of all medical officers and others concerned, to the subject of the prevalence of venereal disease in the Navy; the methods employed in dealing with these diseases; and especially to arouse renewed interest and activity in *educational* prophylaxis in this connection, looking to the careful and intelligent instruction of the entire naval personnel in these matters, to the end that no man shall be subject to the loss of health and efficiency through ignorance of the serious and sometimes fatal results that may come to those so contaminated, and to all connected with them.

"2. During the last statistical year this class of disease has caused four deaths, 138 discharges for disability, and 141,378 sick days. The total damage to the service may be shown by the statement that venereal disease caused the loss to the service of 456 men for the full period of this year. One ship in the Far East reports that 44% of the crew have become infected with venereal disease of some kind during the cruise. Nearly every medical report that comes in states in substance, 'venereal disease *continues* to give a greater damage rate than any other factor.' This condition is not unusual, but has been equally true for many years past, nor is it intended in any way to intimate that venereal disease is more prevalent in the Navy than in other services or in civil communities from which it comes.

"3. The Council on Health and Public Instruction of the American Medical Association states that these diseases are 'the direct or indirect cause of one-eighth of the hospital practice in New York City'; also, that 'of the deaths from disease of the female reproductive organs, 80% are due to gonorrhea alone'; again, a committee of the New York County Medical Society makes the appalling statement that '200,000 people infected with venereal diseases are walking in the streets of New York.' It must also be remem-

bered that a large number of permanent disabilities and fatalities occur both in civil life and in the Navy from far-reaching complications that are often attributed to other causes, and not recognized as the direct result of venereal infection, such as chronic rheumatic troubles, kidney, heart, brain and other diseased conditions that often follow the original venereal infection, but which may not terminate for months or years.

"4. The expense entailed is worthy of consideration, not alone on account of the time lost, but for the medicaments and appliances required to care for these unfortunates; for instance, argyrol for 1914 cost \$10,800; protargol, \$8,929; one single invoice of salvarsan (the demand for which is increasing day by day) was \$17,000. The total expense for these purposes from all sources would probably show a large part of the medical department appropriation, as well as the Naval Hospital Fund, to be involved. The above is presented simply to show the importance of the subject, and the necessity for every one to do all in his power, both by precept and example, to help toward a better condition of things in this regard. Neither yellow fever, nor cholera, nor plague, nor any of the dread scourges of the world compare with the disastrous results of this constant, ever-present evil. The fact that these diseases are not inherent in the Navy, nor in any way necessarily incident to life in the service makes it particularly reprehensible that such conditions should continue to exist if they can be legitimately controlled.

"5. I desire to call attention to the fact that by far the largest part of our personnel is young (under 25), many of them absolutely ignorant of anything pertaining to sex hygiene, and particularly to the types and manifestations of venereal disease, how it is contracted, or the terrible results that almost invariably follow. These young men are especially entrusted to our care, often from the best of homes, where they have been most carefully surrounded with moral and physical safeguards. Their parents and friends, naturally, expect from this great branch of the Government service every safeguard and incentive that will protect their sons from evil of this kind." * * * * *

"8. The use of the so-called 'preventive or prophylactic packet' is not authorized, and I have been severely criticized in various quarters for my attitude with regard to this measure. The use of this packet I believe to be immoral; it savors of the panderer; and it is wicked to seem to encourage and approve placing in the hands of the men an appliance which will lead them to think that they may indulge in practices which are not sanctioned by moral, military, or civil law, with impunity, and the use of which would tend to subvert and destroy the very foundations of our moral and Christian beliefs and teachings with regard to these sexual matters.

"9. When you consider the youth and immaturity of our personnel, including the midshipmen (our future officers) and apprentices of the service, who are entrusted to my keeping with the strong belief that every good and Christian influence inculcated by many an anxious mother or father will be fostered and even strengthened by the protecting care of the Navy, could you expect me to place, or to allow to be placed, in the hands of these often absolutely innocent boys a 'preventive packet' and to say, or allow to be said to them, or inferred, that there is a possibility, or even the remotest probability, that they may need these 'preventives' while on liberty.

"10. The spectacle of an officer or hospital steward calling up boys in their teens as they are going on leave and handing over these 'preventive packets' is abhorrent to me. It is equivalent to the Government advising these boys that it is right and proper for them to indulge in an evil which perverts their morals. I would not permit a youth in whom I was interested to enlist in a service that would thus give virtual approval to disobeying the teachings of his parents and the dictates of the highest moral code. You may say that the ideal raised is too high and we need not expect young men to live up to the ideal of continence. If so, I cannot agree. It is a duty we cannot shirk to point to the true ideal, to chastity, to a single standard of morals for men and women. If, unhappily, experience has taught us that too few resist temptation, that in no wise lessens our responsibility to seek to guide the youth to whom we owe a solemn duty. We need not hope to induce young men to become strong in will power, firm in resisting temptation, if we say to them: 'Go in the way of sin. We have no admonition to you to refrain from evil. All that we have to say to you is to be careful not to contract disease.' Such admonitions to boys in their teens would make me, as Secretary of the Navy, an apologist for looseness of morals. I could not look a boy in the Navy straight in the face while I appealed to him to lead a clean life, if I were approving the policy and the use of a measure of this kind.

"11. We come now to the main object of this letter, which is to emphasize the fact that our attention has become so engrossed with the purely medical prophylaxis that I feel the *moral prophylaxis* has become neglected, and wish to arouse and reawaken interest and activity in the proper teaching of the personnel with regard to the nature and dangers of venereal diseases, and to ask the hearty co-operation of every officer and man to see, so far as his influence and example go, that every associate and shipmate does not become the victim of any of these diseases through ignorance or the lack of moral support in all that makes for continence, and for a clean and moral life.

"12. Certainly, with this attitude no harm can be done, and while we may not be able to entirely wipe out this great evil, yet it is my

firm conviction that much good will surely result and the bad condition be materially ameliorated.

"13. To this end then it is directed that commanding officers consult with their medical officers, and that a regular and systematic course of instruction be given along the lines indicated in this letter; and it is further directed that such efforts be continued until every man is fully aware of the nature of these diseases and the dangers that will certainly overtake him, if he fails to be guided by these teachings.

"JOSEPHUS DANIELS,
"Secretary of the Navy"

Correspondence

INSPECTION OF OUT-OF-STATE MILK.

WINCHESTER, MASS., March 29, 1915.

Mr. Editor: In your editorial of March 25th on the clean milk bill, Dr. Withington states that Boston is the only place in Massachusetts that examines the source of its out-of-state milk supply. This is an error. About one-third of the milk consumed in Winchester is produced in New Hampshire, and for more than three years the Winchester Milk Inspector has given the dairies producing this milk the same careful inspection that is given to those producing our so-called "local" supply. I had supposed that Brookline and several other municipalities also inspected their out-of-state milk supply, but of this I am not certain.

Respectfully yours,

C. J. ALLEN, M.D.,
Secretary Winchester Board of Health.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING MARCH 27, 1915.

CONTRIBUTIONS.

Dr. H. N. Torrey, Detroit, Mich.....	\$ 10.00
Faulkner County Medical Soc., Conway, Ark.	25.00
Newburyport Med. Club, Newburyport, Mass.	20.00
Lieut. Col. F. P. Reynolds, M.C., U.S.A., Honolulu, H. I.....	25.00
Dr. Waldo Richardson, Seattle, Wash.....	5.00
Mrs. O. W. Johnson, Racine, Wis.....	5.00
Dr. Joseph Brettaner, New York, N. Y.....	25.00
Dr. Lewis Gregory Cole, New York, N. Y.....	25.00
Dr. J. N. Hall, Denver, Colo.....	5.00
Dr. J. B. Rogers, Independence, Iowa.....	5.00
Medical Society of the Co. of Winchester, White Plains, N. Y.....	25.00
Dr. Alex. Marcy, Jr., Riverton, N. J.....	10.00
Dr. S. R. Woodruff, Bayonne, N. J.....	5.00
Dr. G. C. McMaster, Pittsburg, Pa.....	5.00
Dr. Charles G. Mixter, Boston, Mass.....	10.00
Dr. S. G. Laws, Spartanburg, S. C.....	5.00
American Surgeons Clinical Tour of 1914, Galesburg, Ill.....	150.75
Colorado Chapter of A. M. P. O. Medical Fraternity, Denver, Colo.....	50.00
Boston Society of Psychiatry and Neurology, Boston, Mass.....	100.00
Routt County Medical Society, Steamboat Springs, Colo.....	10.00
Dr. Bertram M. Bernheim, Baltimore, Md.....	10.00

Receipts for week ending March 27th.....\$ 530.75
Previously reported receipts..... 5221.50

Total receipts.....\$5752.25

Previously reported disbursements:

1625 standard boxes of food @ \$2.20..\$3575.00
715 standard boxes of food @ \$2.30.. 1644.50
Disbursements for week ending March 27th:
230 standard boxes of food @ \$2.30.. 529.00

Total disbursements.....\$5748.50

Balance.....\$3.75

F. F. SIMPSON, M.D., Treasurer,
7048 Jenkins Arcade Bldg.,

RESIGNATION.

It is announced that Dr. Frank H. Holt, who has served as assistant superintendent of the Boston City Hospital for the past eleven years, has resigned to become superintendent of the Michael Reese Hospital in Chicago. His resignation will take effect on April 15, on which date he will have completed twenty-two years of service at the City Hospital.

APPOINTMENTS.

UNIVERSITY OF CALIFORNIA.—Dr. Herbert M. Evans, formerly associate professor of anatomy at the Johns Hopkins University, has been appointed professor in anatomy and director of the department of anatomy of the University of California.

UNIVERSITY OF CHICAGO.—Dr. George William Bartelmez and Dr. Elbert Clark have been appointed assistant professors of anatomy and Dr. Harold S. Adams, instructor in physiology.

RECENT DEATHS.

DR. EDWARD SPRAGUE PECK, who died recently in New York City, graduated from the University of Vermont in 1864 and received the degree of M.D. from the same university in 1868. After practising his profession for seven years he traveled and studied abroad and served for a time in the Serbian army during the Turko-Serbian war. Returning to the United States in 1878 he settled permanently in New York where he practised as a specialist in diseases of the eye, ear and throat. He was associated with the King's County Hospital, King's County Lunatic Asylum, the Northwestern and Eastern Dispensaries, the Bellevue Hospital, the New York City Hospital, St. Elizabeth's Hospital, the Montefiore Home and the Post-Graduate Medical School and Hospital of New York. He was also professor of ophthalmology and otology at the University of Vermont and was a member of various medical organizations. He is survived by his widow, one daughter and three sons.

DR. OLIVER C. SMITH, who died at Hartford, Conn., on March 27, was born in that city in 1859. He received the degree of M.D. from the Long Island Medical School in 1883. He was a Fellow of the American College of Surgeons and president of the Connecticut State Medical Society.

BOOKS AND PAMPHLETS RECEIVED.

The Individual Delinquent, by William Healy, A.B., M.D. Little, Brown & Co.

An Introduction to the Study of Color Vision, by J. Herbert Parsons, F. R. C. S. G. J. Putnam's Sons Co.

Reports to the Local Government Board on Public Health and Medical Subjects. Report to the Local Government Board upon the effects of certain condensing and drying processes used in the preservation of milk upon its bacterial contents, by Dr. S. Delepine.

The House-Fly, by C. Gordon Hewitt. Cambridge University Press, 1914. England.

The Boston Medical and Surgical Journal

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Original Articles.

A NEW PREPARATION FOR PYELOGRAPHY.

By EDWARD L. YOUNG, JR., M.D., BOSTON.

Genito-Urinary Surgeon to Out-Patients, Massachusetts General Hospital.

THE various substances used to inject the kidney for the purpose of obtaining an x-ray outline of the pelvis are, and so far as I know, always have been, with a few exceptions, some soluble organic silver preparation. Some form of bismuth, lime water, and oxygen have all been tried, but without success. Ever since the beginning of this procedure, it has been obvious that there is danger of irritation to a greater or less degree, and as time goes on, more cases are reported where there has been a very severe reaction. This varies from the milder cases, with renal colic of one or two days' duration with local tenderness and some general prostration, to the cases with most severe local symptoms, where the kidney has to be decapsulated to save its integrity, and even a few cases resulting in the death of the patient. We have come to recognize the "collargol kidney," so called, which, when we have to decapsulate, shows perinephritic edema and congestion, staining of peripelvic tissues, capsular and subcapsular injection, edema and infiltration with collargol. If there is only a mild reaction and the kidney is operated on within a few days for some other cause, the appearance is again characteristic; the ureter is dark and the vessels on and near it injected. The pelvis is dark and the peripelvic tissue is stained. The whole kidney is congested

and there are areas beneath the capsule which are stained with collargol.

There have been several cases reported ending in death coming on suddenly within a short time after the injection. There have been many cases which demanded drainage. The two cases at the Massachusetts General Hospital in which decapsulation was necessary following collargol injection have already been reported. There have been a number of reports of a smooth and painless injection with local symptoms starting a few hours later and going on to a severe reaction. These have notably been in cases of pyonephrosis or hydronephrosis or when there was an obstruction to the outflow necessitating the remaining behind of a considerable amount of silver salt, in some cases under slight tension. Several writers on the subject end by saying that a few days of reaction are generally unavoidable with tenderness, pain and constitutional symptoms, and advocate what treatment they deem advisable to meet these, in the shape of morphia, poultices over kidneys, etc.

Considerable experimental work has been done which shows the same damage to the kidneys. Eisendrath, using varying degrees of pressure, found with mild force that the collargol was in the peripelvic tissues and under the capsule, and when considerable strength was exerted, even in the lungs and other organs. In these latter cases also, the collargol went by direct extension into the tubules. Keyes, using no force beyond that necessary to distend the pelvis without tension, and even in certain cases putting a small amount in the lower end of the ureter and stopping the injection before the solution reached the pelvis, found microscopically that the collargol had gone into the blood vessels or lymphatics and was to be seen there and in the glom-

eruli. He did not find, however, any evidence of direct extension into the straight tubules.

Spitzer injected 12 c.c. of collargol into a kidney, which showed in the x-ray radiating into kidney substance.

In injecting kidneys post mortem, using no force beyond that necessary just to fill the pelvis, I found in one case that the straight tubules had been filled.

The attempts made to mitigate these difficulties have nearly all been along the lines of technique, that is, injection without force, very slowly and of as small amount and as weak a solution as will give a satisfactory picture. The various details of these factors have varied according to the varied experiences of the men working in this field. So far as I can find, only two attempts have been made with any success at all, using other preparations for the purpose of pyelography. Cargentos, a colloidal solution of silver oxide, has given good results in some cases. A suspension of silver iodide has been advocated by Kelly and Lewis, but has been very little used, as there are objections, first, of putting an insoluble foreign body in the kidney pelvis, and second, of finding a convenient preparation.

We may at this point consider a few facts and theories regarding silver salts, and in particular those used for the purpose under discussion. All silver salts are known to be to a greater or less extent irritating to the lining membranes of the human body. The organic salts were synthesized in the attempt to find some form which while still being efficient as a germicide, would be less irritating when applied to mucous membranes. But even the relatively innocuous argyrol, when used beyond certain concentrations, has considerable irritating effect in the urethra, though in the throat much higher strength can be used. This irritation is due to the reaction of the lining cells to the absorbed drug, for irritation is an early manifestation of poison, and the amount of poisoning done the body cells and tissue depends on the amount of any given chemical which is absorbed. Absorption demands first and foremost that the drug be soluble, while the rate of absorption depends on the particular surface with which the solution is in contact. For instance, the soluble products of metabolism are absorbed rapidly from the upper gut, while if the same products are introduced by rectum they enter the circulation more slowly. Signs of irritation also can occur in the organs in or by which the drug is excreted, as seen in the familiar example of too large doses of urotropin. In cases where a known soluble poison has been taken by mouth, one of the first efforts is, if possible, to add some other chemical which will by reaction render the original offender insoluble and hence relatively harmless.

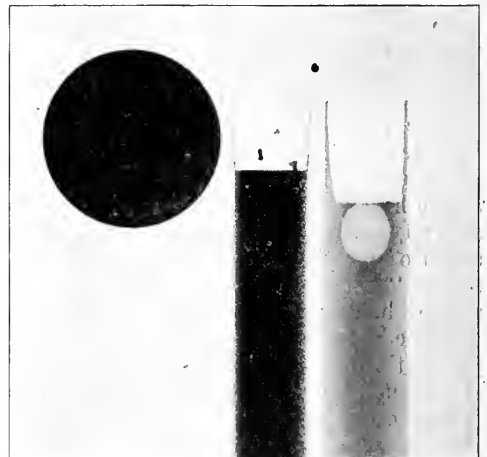
While the fact that the presence of collargol in the kidney is irritating has been long known, it is only comparatively recently that the why of the question has been studied, and, as said

before, these investigations seem to show that collargol gets out of the pelvis and into the kidney apparently in two ways: first, by absorption into the vessels or lymphatics about the pelvis and calices and reëxcretion into the glomeruli; and second, and only when undue force is used, by direct extension into the tubules. On the evidence presented both clinically and experimentally, I believe that we must consider collargol and the other soluble silver salts as absorbable poisons when injected into the renal pelvis and the damage done due to two factors: first, the already recognized mechanical one of force and speed of injection; and second, the factor so far little considered, of the absorbability and reëxcretion. The mechanical factor is well recognized and has, I believe, been intelligently dealt with.

On theoretical grounds, any attempt to find a satisfactory substance for pyelography among the soluble silver salts should be disregarded and our attention should be turned toward the insoluble forms.

About one and a half years ago, Kelly and Lewis reported the use of a 5% emulsion of silver iodide for pyelography. They claimed that it was non-irritating and gave a good shadow. Others who tried it found it impossible to use satisfactorily, for when the mucilage was stiff enough to hold the iodide in suspension, it was too stiff to use, and when thin enough to inject, it was worthless as a suspension and, moreover, had the danger of leaving behind in the pelvis a foreign substance. It was tried in Rochester and Boston, and doubtless elsewhere, but was discarded as useless. Their work was sufficiently convincing, however, to suggest further research, the results of which I am now presenting.

The fact that a 5% suspension throws a better shadow than 10% collargol was easily established, as is shown in the accompanying x-ray. (Plate No. 1.)



From x-ray department of Massachusetts General Hospital.

PLATE NO. 1.

Five per cent. argenticide on left and ten per cent. collargol on right.

Believing that the main difficulties to be overcome lay in the vehicle for the suspension, I asked Mr. Joseph Godsoe, the pharmacist at the Massachusetts General Hospital, about ten months ago, to see what he could find. The necessary requisites are: a substance in itself non-irritating and sterile, sufficiently fluid to flow easily through a ureter catheter, and easily and quickly soluble and diffusible in water in order to fill evenly a kidney pelvis, not form any coagulum, and to leave the kidney pelvis as readily. Mucilage of quince seed was selected as offering the greatest possibilities. This was the vehicle used by Siter in 1905 when he used silver iodide in urethritis. We found, however, that any mucilage we made always became contaminated with a fungus in a short time. Moreover, dilution with water to make thin enough to use, resulted in a poor suspension.

The following is the method used by Mr. Godsoe: Quince seed, 100 grains, water 8 oz. Macerate for 24 hours with frequent agitation. Do not crush the seed. Strain through cloth. Add 2% boric acid up to 20 oz. It is important to extract with water and not with the boric acid solution, as boric acid solution does not make a good mucilage. Enough of this mucilage is added to 12½ c.c. of argentide to make 50 c.c., and vigorously shaken for two minutes. Again, the shaking is an essential part of the process. The resulting emulsion lasts several weeks, and is a thin, clear fluid flowing readily through a ureter catheter. It is on the method of preparation and the character of the resulting emulsion that the value of this substance depends.

The following experiments were undertaken to see what effect the emulsion had in the kidney. First, two guinea-pigs were inoculated, with negative results both in macroscopical and microscopical examinations of the kidneys, but as they had to be killed before coming out of ether, dogs were used.

EXPERIMENT 1. The bladder of a small dog was opened and the ureters catheterized; the kidneys were exposed. In the left 1 c.c. and in the right ¾ of one c.c. of the emulsion were allowed to run slowly by gravity, giving apparent moderate distention. The catheters, which obturated, were removed within one minute, the dog killed one-half hour later. There was no evidence macroscopically or microscopically of any penetration into the kidney or absorption by vessels. The pelvis contained the larger part of the suspension.

EXPERIMENT 2. The same sized dog was selected and the bladder opened and ureters catheterized and the same amounts injected, the pressure being continuous 3 minutes and the dog killed one hour later. The macroscopical and microscopical examinations were again negative.

EXPERIMENT 3. With the same technic the left kidney was injected with ¾ of a c.c., continuous pressure for 3 minutes. On the right, however, 2½ c.c. were injected, using for one minute as much pressure as I thought could be borne without actual

rupture of the pelvis. This dog was killed 30 hours later. The left side showed a slightly congested kidney with no other macroscopic change externally. On section the pelvis contained some of the emulsion, it was slightly reddened, more so around the papillae. Microscopically there was no evidence of penetration or absorption though the congestion was as noted. The right ureter was dilated and blackened, the peripelvic tissues matted together and edematous. The kidney was enlarged and capsular veins congested. On section, the pelvis and calices were much congested, and in one place, extending from a papilla to the cortex about 2 mm. wide, was an infarct of emulsion in the tubules. There was no evidence of subcapsular deposit nor was any of the emulsion seen outside the pelvis, aside from the one infarct noted. Microscopically the above observations were confirmed.

EXPERIMENT 4. The right ureter was injected with ¾ of a c.c. and then tied. The dog was killed 30 hours later. The kidney and ureter were much congested, as was the pelvis on section, but nowhere, either macroscopically or microscopically, was there evidence of the emulsion outside of the pelvis of the kidney.

EXPERIMENT 5. The right side was injected with 1 c.c. of a watery suspension of the argentide and the left with the same amount of the mucilage without the silver salt. Twenty-four hours later the left side showed no reaction of any kind; on the right there was moderate congestion, but neither macroscopically nor microscopically was there any evidence of absorption or penetration.

EXPERIMENT 6. The right kidney was injected with 1 c.c. of 10% collargol and the left with 1 c.c. of 5% argentide emulsion, both under as nearly equal conditions as possible. The dog was killed 48 hours later. The left shows the same picture as noted above, while the right was more enlarged and congested, the peripelvic tissues edematous and slightly stained. There are two spots of subcapsular infiltration. The ureters are markedly different. I think the picture conveys a fair idea of the condition. (Plate 2.)

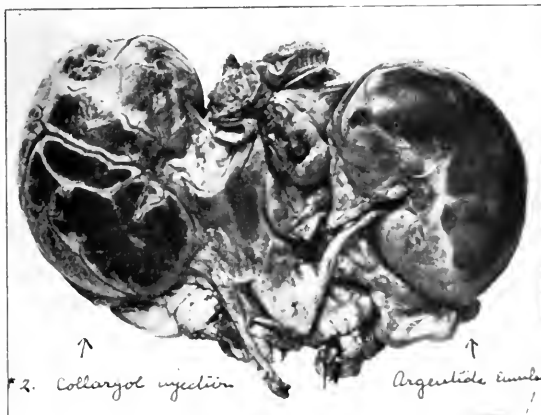


PLATE No. 2.

In all these experiments, with the one exception, the injection was made as gently as in the human patients.

These show, I think, that this preparation is not, as Kelly and Lewis claimed for their emul-

sion, entirely non-irritating, but it does fulfil the theoretical requirements laid down above in that it is non-absorbable and hence only slightly irritating.

We have used this emulsion on the genito-urinary service at the Massachusetts General Hospital for about three months with uniformly good results as regards pictures, far better than with collargol. There have been no cases with anything more than the temporary reaction caused by the cystoscopy and the filling of the renal pelvis, and no untoward after-results. We have taken x-rays one, two and three days afterward in several cases. In two, both pathological pelvises, there was a marked residue the next day. In one this was, however, gone the second day. The other showed small shadows five days later. The kidney was removed the sixth day following injection. On section there were very fine specks of argentide in a few spots near the flattened papillae, not adherent to mucous membrane. The pyonephrotic cavity was remarkably clean, considering the previous pus from that side. Microscopically there was no evidence of absorption. In two other cases there was a very slight doubtful residue the day after by x-ray. In three cases the kidney was operated on, one in twenty-four hours, and one in forty-eight hours, and one in six days. The first one was exposed, the upper part of the ureter and pelvis carefully examined, and finally opened. There was no evidence of irritation and none of the emulsion seen. This was a case

of double pelvis and ureter with bleeding from the upper pelvis. The upper pelvis was injected, the lower one was not. At operation absolutely no difference could be seen in the appearance. The second case was a pyonephrosis, where the kidney was removed. Three c.c. of the emulsion was injected. The picture showed the destroyed character of the kidney very well. (Plate No. 3.) There was no macroscopic or microscopic evidence of the argentide anywhere in or around the pelvis or kidney. This kidney was estimated to have held at least 25 c.c., so that the shadows were thrown by about $\frac{1}{2}$ to 1% strength. The third, described above, was a pyonephrosis, and the shadow is thrown by 3 c.c. of emulsion. The cavity held about 15 or 20 c.c. (Plate No. 4.)

I wish to call attention to three points of technique only. We use the barrel of a 10 c.c. syringe as the container, from which the emulsion flows into the pelvis. When the pictures are taken this is disconnected from the catheter, emptied, the piston inserted and as much of the emulsion as possible sucked out of the kidney pelvis. In the majority of the cases we can recover the larger part. The pelvis is then washed out once or twice with boric acid or salt solution. In all of the work with these cases small amounts, in no case over 3 c.c., have given us good shadows.

Summary. Collargol is an absorbable kidney poison when used in the renal pelvis.

The emulsion of argentide, as described here, is a clean, non-absorbable, opaque fluid, which can be used with the minimum danger to the



PLATE NO. 3.

A pyonephrosis with extensively destroyed kidney; 3 c.c. used in injection.
Estimated capacity 25 c.c.



From x-ray department of Massachusetts General Hospital.

PLATE No. 4.

Pyonephrosis with small destroyed kidney; 3 c.c. used for injection.



From x-ray department of Massachusetts General Hospital.

PLATE No. 5.

Three c.c. used for injection.



From x-ray department of Massachusetts General Hospital.

PLATE No. 6.

One c.c. used for injection.

patient and maximum satisfaction to the surgeon.

(NOTE.—Silver iodide itself cannot be used for this preparation, but an accurately made saturated solution. Since this latter is somewhat difficult to make, and if not right may be irritating, I have simplified the formula by using a saturated solution already on the market.)



COMMUNICABLE DISEASES AND THEIR RELATION TO THE HANDLING OF FOOD.

ON Tuesday, January 19, 1915, a conference on communicable diseases and their relation to the handling of food was held at the Twentieth Century Club, Boston, under the auspices of the Boston Association for the Relief and Control of Tuberculosis. Dr. Edward O. Otis of Boston occupied the chair as presiding officer.

I.

INTRODUCTORY REMARKS.

BY EDWARD O. OTIS, M.D., BOSTON.

THAT food and drink may be a ready means of conveying disease is a generally recognized

fact now that we know that most contagious diseases are communicated by specific germs.

The water used for drinking purposes may carry infectious germs or the food we eat may contain them.

When large bodies of men are assembled as in armies, the most solicitous attention is given by the sanitary department to the safeguard of the water and food supply, so that the fighting force may not be impaired by epidemics of communicable diseases spread by means of contaminated water or food.

One obvious source of danger is the contamination of food thru its preparation and handling by those afflicted with contagious diseases. Cases in which disease has been communicated in this way are not infrequent. I have only to refer, for example, to the epidemics caused by milk infected by some person who was suffering from a contagious disease. The epidemic of infectious tonsillitis which occurred in this vicinity a few years ago was caused in this way.

Typhoid fever is also spread thru contaminated food as well as by impure water. Not long ago at a church dinner in the city of Hanford, Calif., 84 persons who partook at that dinner of a dish of Spanish spaghetti contracted typhoid fever, and on investigation it was found that this dish had been prepared by a woman who was a typhoid carrier—and thru her, by the medium of the spaghetti dish, the germs of the disease had been communicated to the unfortunate sufferers.

Besides the acute infectious diseases which can thus be communicated—and the source of which is more easily traced, since the cause and effect are so direct and rapid, there are chronic, contagious diseases which undoubtedly can be conveyed thru the handling of food, especially tuberculosis and syphilis. Because, however, they are chronic and of slow incubation it is more difficult to trace them. No one, however, would care to be served with food by a person suffering from either of these diseases, or have their food prepared by such a person. The only way to avoid such a possibility would appear to be to require an examination on the part of the employer of all employees who prepare and handle food—but that is a question for us to consider.

As regards tuberculosis one of the ways in which the disease is conveyed is by ingestion—the entrance of the tubercle bacilli into the alimentary canal, and food contaminated with these bacilli is one way in which this may occur. Consequently it can readily be seen that those suffering from active pulmonary tuberculosis and coughing may infect the food they prepare or handle.

The records of tuberculosis dispensaries show that there is not an inconsiderable number of tuberculous individuals employed as cooks or waiters in hotels and restaurants. For example, in one such dispensary in this city, from July 1 to December 1, 1914, there were 66 cases of well marked tuberculous infection in these occupations, more than half of them having reached the second or third stage of the disease. To give a few examples:—

A colored waiter in one of the hotels, in a very active stage of the disease.

A Greek waiter in a hotel in the advanced stage of the disease.

A pastry cook in a large hotel for 7 years with advanced, active tuberculosis.

Second cook in a large restaurant—very advanced case—sent to State Tuberculosis Hospital at Tewksbury.

Italian pastry cook at one of the largest and best hotels—advanced disease in both lungs and in the throat. Board of Health notified the hotel management to discontinue his services, and he was sent back to Italy.

That this danger has been recognized by employers of those who prepare and serve food is shown by the regulations—for example, of the Pennsylvania Railroad, where some 13,000 people are served every day, which requires that all employees in the railroad's restaurants and dining cars, who have to do with the preparation or serving of food, must be examined at least once every 30 days and oftener if for any reason it is thought advisable.

At the Bellevue Stratford Hotel, Philadelphia, a strict physical examination with sputum and lung tests is given to all candidates for employment. A monthly examination is also given to

those who come in contact with guests in such a way that their ill health would be a source of danger, or to those who handle food.

Recently a bill was passed by the State Legislature of Pennsylvania, which, however, did not become a law, requiring every hotel employer to furnish a medical certificate for every employee, showing a clean bill of health, the cost to be sustained by the hotel employer.

This conference has been called to consider this whole subject of communicable diseases in relation to the handling of food—and from various standpoints—from that of the sanitarian, of the employer, and of the employee.

FIRST:

we wish to consider how great the danger is, and,

SECOND:

what public or private measures are feasible to obviate it.

As the first speaker, I have great pleasure in presenting to you the Commissioner of Health of the State of Massachusetts, Dr. McLaughlin.

II.

DANGERS IN HANDLING FOOD BY PERSONS AFFLICTED WITH COMMUNICABLE DISEASES.

BY ALLAN J. McLAUGHLIN, M.D., BOSTON.

State Health Commissioner.

IN view of the limited time allotted to the speakers (and I may say that it suits me exactly), I think I shall confine myself to the dangers of the so-called water-borne diseases, mis-called, with which I am most familiar. The danger of the transmission of disease by food is far greater than people appreciate. It has not received the attention which it deserves. For instance, in typhoid fever, our first thought is water; our second thought is milk. In the suppression of typhoid fever, we are able to eliminate water absolutely by taking proper measures. We have been able to do a great deal with milk, in the improvement of the milk supply, and yet, after all this is done, we have a rate of from five to ten deaths per one hundred thousand population, due to what we call residual typhoid; that is, what is left, and people have usually been satisfied with that; thought that was to be expected, and that no further measures were necessary. A good health officer considered his duty was fully performed when he had eliminated water and milk, and I may say that in this country, in a great many places, they have not gone that far yet. In Europe, it is easy to find what this residual typhoid is, because there they have eliminated water, and in many cases there is no milk problem. For instance, in the city of Naples, they have a water supply from an uninhabited mountain water shed, which comes through an old Roman aqueduct, and is absolutely pure. They have no milk problem,

because the Italian is a very suspicious individual, and he insists on seeing the milk come from the cow or from the goat into the receptacle that he brings out. They are very poor, and cannot afford to have ice, so the first thing they do is to boil the milk; not to kill the germs, but to preserve it. So practically milk is eliminated. It is largely so all over Europe. They do not use as much milk as Americans do, and, as a rule, they boil it before they use it. Even there, they have a rate of from five to ten deaths per hundred thousand, due to these other factors, which we call residual typhoid.

Now, what are the factors that go to make up this residual typhoid? You are all familiar with the three R's in early education. We have the so-called three F's in typhoid—fingers, food and flies. Whatever we may think about the fly as a more or less acknowledged factor in this, we must consider that fingers and food have a greater influence. The two must be considered, together, and as a combination, outside of water and milk, they constitute the biggest factor in the spread of typhoid. This contact factor, in which food and fingers play such a part, is the primitive way in which this disease has been perpetuated from early times, because in prehistoric times there was no such thing as a public water supply or a public milk supply, and family life was very close and intimate. This disease came down through the ages by means of fingers and food, and today, the more nearly we approach the primitive in the tenement houses in the city, the greater the transmission of disease by this contact method.

The previous speaker has mentioned the Hanford epidemic, and I am very glad he did. It is a very striking example which occurred within a very short time, showing what one dirty hand can do in the way of causing sudden death. This woman prepared the spaghetti at her own home, and, expecting to rebake it to some extent at the dinner, she prepared it and undoubtedly infected it with her dirty hands in the morning, and left it there to incubate in a very favorable medium, in which the germs enormously increased; then gave it further incubation at a very slight heat. To show that this heat would not kill the germs, they made an experiment, and using the same kind of an oven and sufficient heat to just nicely brown the top of the spaghetti, they found that the temperature in the interior was only 70 degrees Fahrenheit, which was nothing more than a comfortable incubation period for the germs. The result was that of the 150 people at the dinner ninety-three came down with typhoid, and while the ordinary period of incubation of typhoid is usually about fourteen days, on the average, in this outbreak it was less than seven days, showing that the dose of typhoid organisms that they must have received with this spaghetti was very large.

Cholera is very like typhoid. They are sister diseases in the matter of their transmission.

We had a mysterious outbreak of cholera in a Manila prison in the Philippine Islands. At times we would have cholera in the remote provinces, but there would be no cholera within one hundred miles of Manila. Cholera broke out in a prison where we had the absolute control of the food and water supply for the institution, and also perfect control, if you will, over the prisoners. I suspected it was a question of fingers and food, and we took three hundred of those who had to do with the food; the cooks, waiters and others who had anything to do, even to the peeling of potatoes, in any way, with the food supply of the institution. Of those three hundred, we got 6% of cholera carriers. They were not sick at all, but those 6% were carrying cholera in their discharges, and with their personal habits, you can readily understand that there was plenty of opportunity to cause these cases which were happening from time to time.

A striking example at the Presidency General Hospital in Calcutta illustrates the point further. They had an outbreak where ten nurses came down, and six died. They all ate at the same table, and they had a new serving boy at that particular table. Professor Hafkin investigated the epidemic and found cholera germs in the remains of food; he found them in the water bucket in which they kept water to carry them over the period when the water was shut off. In this water bucket they had a dipper with a handle, which the boy was in the habit of dipping into the bucket, and sometimes his hand went in with the dipper. The professor took those two boys who handled the food, washed their hands in sterile water in a sterile vessel, and then he made a broth of that, which favors the cholera organism particularly, and had no trouble in recovering the germs from the water in which he washed their hands, showing that cholera germs were on the boys' hands. One of the boys had just washed his hands; at least, he said he had, but it was in a perfunctory way.

One other instance I will cite, and that was in 1908, in Manila. We had an outbreak in an American boarding house. We had a couple of deaths, and four or five cases which recovered. They had a meal in the evening, and at this meal there was served a dessert, some kind of a disturbance; I don't know what you would call it. It was made of gelatine, with a certain amount of fruit in it, and over this disturbance there was poured a custard-like dressing; a kind of a thin custard. To save time, this custard had been prepared by a Philippino cook in the morning, and left for the evening meal. You could not have made a better medium for the cholera organism. The cook had undoubtedly plunged his dirty fingers in this dressing, and left it to incubate through the day, and in the evening, when it was served on that dessert, it gave this terrible result. We went up there to get the boys, to examine them and find out if they were carriers, which Professor Hafkin was

able to demonstrate in Calcutta, but they had both escaped. They heard we were coming, and got away, but undoubtedly one of those boys was a cholera carrier.

The control of water and milk is easy, compared to the other factor, taking care of the contact in the family; of the carrier of disease, who is not sick, but who may be handing you your meals at a restaurant, on a Pullman car, or on a boat. It is a very serious problem, and difficult to handle. Suppose you knew all the carriers. You could not shut them up in jail. Many of them are bread winners. You possibly could prevent them from engaging in certain vocations, I think, with justice. It is a difficult problem at best, and after all, it is not possible to know all the carriers. You could not possibly hope for it. There must be some other way of making this particular factor less effective in causing disease. I think that way lies in general education in personal hygiene. In fact, it is the only way we will ever reach the causative factors in these diseases. You see that is a very difficult thing. You never can get all the people to do it. But you can get constant improvement, and in the end, effect great improvement in this way. People are not dirty from choice, as a rule; they are dirty from a combination of causes; ignorance, and lack of facilities for being clean, largely. The ignorance factor can be combated by public education; by the great agencies which we have now going down among the people: the district nursing associations, anti-tubercular associations, settlement workers, and other agencies which we have. They can do a great deal in combating this ignorance, and also we can look out and see by our building ordinances that they have proper facilities for keeping clean.

Then there is that other great group which is a perpetual danger to us, those who are handling our food supply. A great deal can be done by furnishing them with proper facilities. That is, the employers in hotels and restaurants can see that it is made easy for those people to keep clean. It takes some effort, under certain conditions, to keep clean. I have been myself in a country where I have been expected to take a bath in a teacup. It takes a certain amount of moral courage to go through it in that way, but by making it easy, there is no excuse. I repeat. I believe people are not dirty from choice. I think they are often dirty from the combination of circumstances which surrounds them.

III.

DANGERS IN HANDLING FOOD BY PERSONS AFFLICTED WITH COMMUNICABLE DISEASES.

By HARRY LINENTHAL, M.D., BOSTON.

THE general proposition that it is dangerous for a person suffering from a communicable dis-

ease, or for one who is a carrier of the germs of such a disease to handle food products, is so well known that very little evidence is needed to establish the fact. Any health officer who has had anything to do with communicable diseases can point to his own experience to show extensive outbreaks of contagious diseases due to infected food. I have myself had occasion to trace a number of outbreaks of typhoid fever, scarlet fever, and septic sore throats, which were due to contaminated milk, infected by persons suffering from those diseases or, as is frequently the case in typhoid fever, by persons who were well, but who were carriers of the typhoid germs. The intimate and extensive relations which exist in present society are such that if a farmer on some distant farm fails to wash his hands in the morning, an outbreak of disease is apt to occur in a community hundreds of miles away from that farm.

Milk, however, is not the only source by which infection can be carried, as evidenced by the recent epidemic in California, where ninety-three persons contracted typhoid fever from a dish of spaghetti infected by a typhoid carrier in its preparation.

While it is comparatively easy to obtain epidemiological evidence of infection of food where large masses of people became infected, it is a very difficult matter, and most often impossible to demonstrate the source of infection of the sporadic case of contagious disease. Yet I think it is fair to assume that in many such sporadic cases the infection has been transmitted by food or food utensils handled by a person who was ill with the disease. In a disease like tuberculosis, which has such an insidious onset, it is impossible to trace the source of infection of any one case, but that the danger from infected food is real cannot be denied. The danger not only comes from coughing or sneezing, contaminating the food in that way, but from the handling of the food by persons ill with tuberculosis. There is experimental evidence to show that cultures of tubercle bacilli may be obtained from the hands of patients suffering from tuberculosis, after the ordinary perfunctory washing of the hands.

The danger from hand infection is extremely important in certain industries; I wonder how many of you have ever seen the process of dipping chocolates. The chocolate dipper has a tray of semi-liquid chocolate in front of her, and a tray with the hard candy filling. She picks up the hard candy, and literally washes her hands in the liquid chocolate until the candy is covered. The tray with the chocolate is exposed in front of her continually, and the possibility of infection is many times greater than under certain conditions where the exposure of the food is only momentary, such as is the case of a waiter, for instance, serving an order. You perhaps know that it is only the better class of candy that is dipped by hand. The cheaper grades are dipped by machinery, in a very cleanly way. The reason probably is that we insist that there

shall be a little frill on the top of the chocolate, and that can only be made by hand dipping. We demand a stimulation of our esthetic sense when our food is served to us, frequently at the expense of extremely unesthetic handling of the food in its preparation.

In this connection I would call attention to the practice in certain restaurants of serving some kinds of meats, such as chicken croquettes or lamb chops, with a little ornament consisting of a curled paper around a small stick. I never could quite understand the purpose of this ornament but it occurred to me that possibly the sagacious chef who originated the custom knew that the stimulation of the esthetic sense is productive of good digestion. The principle of the practice is very good physiologically, but its application is rather questionable. That ornament never particularly appealed to me, but I remained indifferent to it until some years ago I happened to be in a tenement house, one of the very worst in the West End, and I found a woman engaged in making these little paper ornaments for hotels and restaurants. I shall not attempt to describe the condition of the room and premises where these were made, but I will say that since then I much prefer to have my meats served unornamented.

The question of the proper handling of food not only relates to the danger of infection but is a question of general hygiene and cleanliness that we would like to know exists in the preparation and handling of our food supplies. Now what is the remedy? How can we guard our food supplies? To some, the solution is very simple and obvious. Enact a law, prohibiting any one who is either a carrier or is infected by disease from handling any food product. Such a solution is impracticable at the present time for the reason that there is not a sufficient public sentiment behind it. Any law which lacks the support of the public, is of no value.

The keynote of the situation, as Dr. McLaughlin has stated, is the education of the public; teach the public to demand that its food be handed to it in a cleanly way. This will accomplish a great deal more than legislation, at the present time, at any rate. Legislation may follow afterwards. I shall not enter into the ordinary methods that have proven of service in the education of the public, they are well known to the Association for the Relief and Control of Tuberculosis that has done such splendid work in its tuberculosis campaign. Such methods include press notices, lectures at women's organizations, labor organizations, exhibits, etc.

I wish to make the following suggestion which seems to me practical: A committee should be appointed by the Boston Association for Relief and Control of Tuberculosis. This committee in consultation with the Health Commissioner of Massachusetts should draw up regulations for various establishments where food is either prepared or handled. An effort should then be made to enlist the coöperation of several pro-

gressive firms by getting them to adopt such regulations. The more enlightened manufacturers could be made to realize that the adoption of such regulations would be an investment and would bring returns in increased output of the products they handle. To get such returns these firms would advertise that their products are put up in accordance with regulations approved by the Health Commissioner of Massachusetts. Not only would the adoption of such regulations set a standard for other firms to follow but by their advertisement would help to create a demand on the part of the public for pure, clean food.

Before closing I wish to call attention to one other aspect of the problem. A widespread educational campaign on the dangers of having food handled by persons ill with communicable diseases, and the adoption of certain standards by firms engaged in the manufacture or handling of food products would prevent some persons ill with tuberculosis from looking for employment in such industries. I recall the case of a young girl I saw about five or six years ago, who gave up her work in a department store because she was suffering from advanced pulmonary tuberculosis and she found the work too hard for her. She decided to look for easier work. At one time, she had had a little experience in chocolate dipping, and she decided she would go back and become a chocolate dipper. I have no doubt a great many instances of that kind occur, where patients suffering from tuberculosis will give up one kind of work because it proves too hard for them, and look for easier work, and very often the easier work lies in some line where they expose food to infection. If the public were educated to the fact that people who handle food supplies must be free from disease, perhaps a great many such cases might be prevented.

DR. CLEVELAND FLOYD. Very striking examples of the way cholera and typhoid fever may be spread by means of food supplies are well known and it is well to remember that equally striking examples exist of where tuberculosis may have been carried through food supplies. We probably all have read of the experience of one physician in New York City, who noticed in getting on a street car that the conductor, who had been coughing, put the transfer that was given to him into his mouth, holding it there a few minutes before giving it to him. He decided not to use that transfer, but took it home and washed it in a sterile solution, then made a smear, and obtained tubercle bacilli from it. This is of importance in regard to the preparation of food, because we all know the women who pick out our chocolates when we want them assorted at the candy store, also lick on the labels on the outside of the packages. In that way, we have, if they have tuberculosis, a very convenient means of contaminating the chocolates we are going to consume.

I also have run across a very striking instance of infection of utensils, where there was a boy who was dying from tuberculosis, and a man

who frequently went into the house as a friend. The boy had an abhorrence of tuberculosis, and to encourage him, this friend used to drink from the same cup which the boy took his milk from, immediately after the boy had taken his portion. A short time after the boy had died, we saw this man and he had a well-marked case of pulmonary tuberculosis. As far as we could find out, that was the only method by which he could have acquired it. If this means anything to us, it demonstrates that we may acquire tuberculosis by ingestion from the handling of food by infected fingers and different utensils.

IV.

TUBERCULOSIS IN ITS RELATION TO THE HANDLING OF FOOD.

By CLEVELAND FLOYD, M.D., BOSTON,

Director, Out-Patient Clinic, Boston Consumptives' Hospital.

THE problem of tuberculosis in connection with the handling of public food supplies has appeared, during the past seven or eight years to those dealing with the question, through the Boston Consumptives Hospital as one of increasing importance. The chief places where tuberculosis, food, and the public meet are in our bakeshops, our restaurants and hotel cafés and their adjoining kitchens. This by no means covers those occupations in which the tuberculous patient is employed in the preparation of food, and while not infrequently the chocolate dippers in our candy factories, the cracker makers and fruit handlers have been found to be actively diseased, they are in the minority.

During the past seven years, among some six thousand cases of tuberculosis examined and provided for by the Boston Consumptives Hospital there occurred among those giving their occupation as cooks 56 cases, among waiters 109, among bakers 16, making a total of about 181 or 2% of all cases of tuberculosis reporting to us.

Investigation of these 181 cases showed the duration of illness to have varied between a few weeks to three years when they first reported for examination. One-third of this number showed from their sputum that they were throwing off tubercle bacilli when we first got in touch with them. It would seem, therefore, to be certain that a large number of these patients were actively supplying the public with food, many for a period of months or years, while suffering with a disease dangerous to public health in its most active form.

It is of further interest to note that almost without exception, when these patients were first reached by the Consumptives Hospital Clinic, they had voluntarily given up work because of not being equal to its demands.

The distribution of these patients among hotels and restaurants has been fairly uniform ex-

cept among those houses which employ Greeks. Here the percentage of the tuberculous seems to be much higher. Such is the condition as found by only one institution in Boston and if it were possible to obtain accurate figures from all the medical institutions of the city together with those of private physicians the number of active cases of pulmonary tuberculosis among our food purveyors would be very largely increased.

From any point of view, whether from that of the employer, the employees or the public, this situation is one of importance. From the point of view of the public, the idea of having its food passed through diseased hands is revolting. Its danger is not a negligible one and is merely one of many sources of infection to the public at large. From the point of view of the employee, disability from disease is a very serious one, discontent with situation and occupation often go hand in hand with it and unreliability may frequently become the resulting characteristic of persons so afflicted. From the point of view of the employer the reputation of his house is all important and as the public becomes more and more educated as to the cause and spread of disease, the unsavory conditions pertaining in relation to the handling of food will be sought out, and correction demanded. Those business concerns that shall anticipate this movement cannot but be the gainers thereby. Anything which impairs the working power or the working force of a business enterprise is of serious detriment to it through the loss of time, inadequate service and engendered dissatisfaction. The public and the employer have a duty towards the employed as well as has the individual who serves the public to it and his employer. The problem of tuberculosis among those handling public food supplies, while important in itself, is only part of the great problem of health among the working class in any line. In Boston this disease can be fully met and in time controlled if coöperation can be established between the machinery already in existence in this city to combat this disease and employers of labor.

The incorporation of a fully-qualified physician as a working member of every large firm for the examination of all persons before their acceptance as employees will tend to detect many cases of diseases in its curable stages and not only save the life of the person afflicted but time and expense to the employer. Where it is possible the physician should be paid by and be responsible to the firm and should have a predominant voice as to whether a prospective employee is physically fit for his work or not. Where it is impossible for a concern to meet the expense entailed by retaining their own physician, the public clinics of the city should be utilized to a very much larger extent than at present and a certificate of health should always accompany that of good character, when a man is accepted for a position. Some such plan is at the present time in use in such concerns as The International Harvester Co., and Sears Roebuck

Co. of Chicago, and some other firms. Its general adoption will pay a hundred fold in greater efficiency and in lessened loss of time from sickness among employees and result in increased public support and confidence in those Houses thus actuated by a sense of their responsibility in matters of public health.

V.

DANGERS FROM SYPHILIS.

BY ABNER POST, M.D., BOSTON.

SYPHILIS is a communicable disease. In its communication, it is necessary that some appreciable discharge from an open sore of a syphilitic should be placed on either mucous membrane or some portion of the skin which is capable of absorption by a non-syphilitic person. At that spot, the inoculation takes place. There after an interval of some three or four weeks, the first manifestation of the disease in what is known as a primary sore, or chancre, is seen. Some six or seven weeks later occur what are known as secondary symptoms, which show that the disease is thoroughly a constitutional, and not a local one. Prominent among these symptoms are ulcerations about the mucous membranes, especially the mouth. It is only from these open sores that the communication of the disease can take place, so that patients with a primary sore, or with the ulcerations of the early secondary manifestations in the mouth, are practically the only patients who are really dangerous. Babies with hereditary syphilis might be included. Syphilis has the peculiarity of being transmitted to the offspring, and babies with hereditary disease are very subject to ulcerations in the mouth, which are capable of conveying the disease in exactly the same way as in the acquired disease of adults.

The microscopic entity, the bacterium of syphilis, is a very minute organism known as the spirocheta pallida, or better, *treponema pallidum*. It can be seen under proper microscopic conditions as a living entity, and its motions can be watched and studied. It is necessary for the understanding of the extent of the danger of communication, to realize that on the microscopic slide, where it is watched, this little entity loses its life, and can no longer be resuscitated, somewhere within an hour. In the pathological laboratory, when all possible pains are taken to preserve the life of the spirocheta, it is with difficulty that it is kept alive more than twenty-four hours. So we may see that the danger of transmission of syphilis is one that is confined to a limited number of syphilitics, and to a very short time after the material which contains the germ of the disease is separated from its parent body. We have, then, in its relation to food, in the first place, this certainty. It cannot be packed with food products and afford danger

weeks or months later, when the package is opened. It is hardly possible that the germ could be contained in any cooking material which is first prepared at home, and served hours afterwards. It is hardly to be conceived that an ingenious cook could accidentally hit upon means of preserving this spirocheta, which have so far escaped the pathologist. Cases of syphilis, then, which are communicated by food, must show themselves, in the first place, somewhere in the region of the mouth or the face, at some spot where the material has first been brought in contact with the individual who partakes of it.

Of the total number of primary lesions of syphilis which are recognized as such, some ten per cent. are found on parts of the body which are uncovered by the clothing, and of these a certain number occur on the hands, and such inoculations on the hands and fingers are practically confined to those who have dealings with the sick,—physicians and nurses.

The rest of these lesions are almost all entirely in the mouth, lips, tongue, tonsils, or somewhere in their immediate vicinity. Of these inoculations about the mouth, a certain number are known to be the result of immediate contact of the syphilitic with the healthy individual, in kissing. A certain other number of such inoculations take place from the common use of a pipe. We all know how common it is for people working side by side, to pick up the pipe that was laid down on a bench in their immediate vicinity.

But, subtracting these obvious methods, there still remain a certain number of cases of syphilitic inoculation about the lips or the mouth, which can best be explained through the use of utensils which convey food. In the first place, the most common medium for the conveyance of syphilis is, I believe, the common drinking cup. Statistics on the exact method by which inoculation takes place are practically impossible, but if one takes a series of individuals who show syphilitic chancres on the lips or the tongue, one finds that a large portion of them are individuals who come in contact with a large number of persons who use a common drinking utensil. It is not always easy to trace such things, but occasionally one gets such a story as that of a young lady with a chancre on her lip, who could point back to a time when she was shut in with a large number of excursionists in a small railway station on a hot day in July. There was a single glass for drinking water, and overcome at last by heat and thirst, she, with some repugnance, drank from this glass. As far as one could trace back the time of inoculation, her chancre on the lip dated from that moment.

Some time ago a lady with a chancre on the lip explained that she believed she had received her inoculation in her own kitchen. She had been in the habit of working at culinary concoctions in company with her servant maid. They tasted and altered the material which they hoped to cook, and tested it by tasting, using a

common spoon; first the mistress, then the maid; then the mistress again. The mistress discovered, after this habit had been exercised a number of times, that the servant girl in the kitchen had sores in her mouth which the mistress believed to be syphilitic. The girl was immediately discharged, to find a place in somebody else's kitchen, so it was impossible to confirm the mistress's story of syphilitic lesions of the girl's mouth.

There are other inoculations of the same sort which are not so easily traced, but about which one can often draw the inference that they come from eating in a cheap, crowded and perhaps unclean eating house. One case comes to my mind of a woman with an inoculation somewhere within the mouth, about the gums, which had troubled her dentist and her physician, and after a series of weeks, she showed a general outbreak of syphilis, which could be traced back to a certain time in the summer when she spent a fortnight in a crowded boarding house at the seashore. Her vacation had been spent in a boarding house frequented by people of various sorts, and some one among them had evidently inoculated her with syphilis, perhaps through the failure to cleanse spoons, and forks and glasses, but at any rate, that was the time at which her inoculation took place.

I took particular pains to mention babies with inherited syphilis as having the lesions capable of conveying disease, and I did this because it is so very common with nurse girls and those in the care of infants to test the nursing bottle in their own mouths before putting it into the baby's, and afterwards, when the baby drops it, to repeat the same operation. The same thing is done with spoons when the baby is fed with a spoon. In this way, there are occasional inoculations which take place from a syphilitic nurse girl to a healthy baby, or from a syphilitic baby to a previously healthy nurse. The danger, then, you can see, comes from persons with whom one comes into pretty close contact at the time when they themselves are dangerous. When I speak of boarding houses and the danger in such places of inoculation, which I feel sure exists, I want to say that while such danger comes undoubtedly from syphilitic waiters and waitresses, the danger also exists, and is perhaps fully as great from unclean guests, who are themselves careless, and the utensils which they have used and which have not been properly cleansed.

One cannot speak of such dangers without in the first place wondering a little bit as to their number, and next, as to how one is to avoid them. The number of such inoculations is certainly not very great, but it is sufficiently large so that we have them always with us. It is possible, at any moment, to produce cases for purposes of instruction. They are preventable. In the first place, the common drinking cup should go. Fortunately, it has already disappeared in many localities, but it is still to be found in a good

many workshops. It is a matter of some difficulty to make sure that proper means, by separate cups or the cleanliness of a cup which has been used, is provided.

We have means of controlling the spread of syphilis. Our modern methods, by salvarsan, or 606, allow us, not to cure the individual with such certainty as we hoped a few years ago, but its use controls the external and dangerous manifestations of the disease. So that one may find the treponema on the surface sores at one moment, and within a few hours after the administration of salvarsan, such treponema can no longer be found, and it is perhaps the most wonderful thing of all that this is practically the only disease against which the community fails to guard itself. We have been so long taught that syphilis carries with it a disgrace; that it is the fault of the individual, that it is very hard indeed for us to learn that at least 50% of our cases, if we include all the innocent infections and the inherited cases, are of innocent origin, and it is very necessary for us to know that while the cases of infection through food are not as many as those of some other diseases that have been mentioned, they are certainly too numerous to be allowed to go on without attempt on our part to prevent them. What is being done to limit the spread of the disease? The attempts to control it are individual rather than official. A free dose of salvarsan for the syphilitic patient is one of the most difficult of all remedies to obtain. I think I am right in saying that the only effort made by the State authorities to deal with the matter consists in the commitment to the State Hospital at Tewksbury and treatment there. I think we have a right, and it is our duty to ourselves and our suffering brothers and sisters and to the community, to demand that syphilitic patients be provided with proper medical treatment just as much as patients with typhoid or tuberculosis.

VI.

SUGGESTIONS IN THE EMPLOYMENT OF LABOR.

By T. K. CORY, BOSTON.

As stated by the Chairman, we hire a great many people. We have on our regular pay roll about 2250 people, in the store proper. In order to keep that number up, we must employ about 3500 to 4000 people a year. They leave because of moving out of town, better positions offered, and a great number of them because they get married. I am not recommending that so that you will come to the department stores for employment, but we lose a great many people through getting married. So it would be almost impossible to require a physical examination of that number of people. However, in our application blank we ask the question about their health in several ways. Then after they are in our em-

ploy, they are turned over to the medical department we have in the store, that handles from 150 to 200 people a day. We have taught the people that the best thing to do is not to wait until anything happens, but to use what we call the clinic, and use it freely, in order to prevent anything from happening. A little while ago I was up in the clinic, and a young fellow had lost a finger; caught it in the elevator machinery, and pulled the finger off. I watched them dress that finger, and a few minutes afterward one of the girls came up stairs, and I said, "What's the matter with you?" She said, "Why, I don't know; I got a pin scratch somewhere, and I guess this is it." That was more important than the fellow that lost the finger. We expected him to go to the clinic, but the fact that we can train our people to go there for pin pricks that are so small that she had to stop to find it, is of great importance, I think.—what our professional men here are trying to have people do.

We also have, in the store, shower baths for people that work where it is warm, or where they are exposed more or less, and the free use of soap. I believe soap is about the only thing we do use now that really proves we are civilized. We have in our shop a health committee. We have three nurses. One nurse is a visiting nurse, and she does an immense amount of good, because she tells your home conditions.

We send all our people to Rutland, or to some of the camps, when we first discover tuberculosis. That we pay for. We allow them their expenses, and in some cases a little bit more than their expenses. We have at the present time, I think, about six or seven cases that we are looking out for, of that kind. We have never yet allowed a case to get beyond the Rutland point before it was discovered. That means that they will accept them in Rutland if there is a fairly good chance of their getting well. We have several in the store today who have graduated and are back, and who have married and are raising families, who, as far as we know, are perfectly cured. We have two girls who have just come back. One of them had tubercular glands, and the other one had trouble with the lungs.

Now, someone, in speaking here, used the expression that if the stores, if the shops and the factories did not do these things because of philanthropy, that they ought to be done because of good business. I am not going to say that we are doing this for philanthropy or good business. However, it is splendid business. I can't understand why business men who have problems to solve and who are in the habit of solving problems, can allow their human machines to be as run-down and to be given as little care as they give in the average shop and the average factory. There seems to be a penalty for being a human being. Any business man or any manufacturer will take his machinery and will see that it has the best of belts, that the gears are

right, that it is lubricated with the very best oil, and the part of that machine—the only part that he cannot build—the machine with brains, because it is a human being, he allows to run down until he can't get efficiency out of the machine, or the person who is trying to run it. I should think that, if nothing else, would teach the business man that the proper thing to do is to look out for his help, and look out for his people. Now, my friend, Henry Abrahams, is going to follow me, and I know he is going to say something about how a person has got to live. They have got to live, and labor must be protected by the employer, and it is his right and his duty to protect that labor. What I mean by that is this: Unless a man can commence his reform in his own establishment it is a piece of impertinence for him to go out to reform the community until he has done the right thing at home.

I spoke a while ago when I had more than ten minutes, to a lot of business men who were reforming the city of Worcester, and I know that if they were going to hand to Worcester the kind of reform that they had in their own establishments, then I would say, "God help Worcester!" I believe that every business man, as a good citizen, has the right and the duty to protect his employees, to make them well and to make them happy, from two standpoints; first, because it is good business, and second, because it is philanthropy.

If you should ask me to sum up whether we have a successful business or not, I should say that the night before Christmas, as we stood on our first floor, a lot of well, happy people went out and wished us a Merry Christmas and a Happy New Year. I was standing talking to Mr. Edward Filene and he said, "Has the year been successful?" I said, "Yes. Our people are going out of here tonight happy, and they wish us well, and we have done our duty. If we have made money, that does not count so much. The thing that really counts is that the people are well and happy, and they wish us, as I wish you all, well."

DR. OTIS. It gives me great pleasure to introduce Mr. Henry Abrahams, Secretary of the Labor Union.

VII.

SUGGESTIONS IN THE EMPLOYMENT OF LABOR.

BY HENRY ABRAHAMS,

Secretary Central Labor Union.

I want to say amen to all that the doctors have been saying in relation to the handling of food. But in all large assemblies such as this there is always someone who perhaps strikes a discordant note, and I am going to be that one, I suppose. I want to say if all our employers were like Mr. Cory, perhaps the world would be a great deal

better. In one of the circulars on the table here today I saw that it was necessary not to over-work, also to keep clean. It costs money to keep clean; some people don't think that. I believe in a fair day's work for a fair day's pay, but I don't believe in that kind of a day's work from which a man goes home to his family and says, "Never mind, I don't care about any supper. I am tired; I guess I'll go to bed." I don't care about that kind of a day's work; a man exhausts too much physical energy.

Our physicians have said a great deal, and they are entitled to a great deal of credit for what the medical fraternity is doing to prevent disease. It is a question in my mind if they have got right down to the cause of the disease. They understand the effect all right, and I believe that a great many of them know the cause, but somehow or other, nobody says anything about it. You wouldn't expect a man, a married man having three children, a family of 5, who was getting \$1.75 or \$2 a day to live under the very best conditions. It is all very well for a number of social workers, perhaps, or a number of philanthropists to tell that man, "You ought to be clean; you ought to do this, and you ought to do that," but if you want to do away with tuberculosis, in my humble opinion, one of the ways, and one of the best ways, is to raise the standard of living. It is all very well to say, "Eat good food and plenty of it," but the man has got to get a living wage. (I learned that in Filene's.) In order to get good food, and plenty of it, he has got to have a living wage. There is no question about that. You can tell a man that he ought to dress warmly, and all that sort of thing, but he has got to have money to do it.

You tell a man his children ought to be well clad. So they ought. You can tell a man that everything about his home ought to be in a sanitary condition. That's true. There isn't any question about it; but he has got to have the wages, for the money he gets Saturday night determines where and how he shall live. Don't forget that part of it. That is why I am a trade unionist. I believe that I can help to prevent tuberculosis by seeing that a man is better housed. That's the question that should interest the community. The worker should be well housed; sanitary conditions should be as good at home as they are in the factory or in the shop. Conditions in the factory today are a great deal better than when I was a boy. I don't want to describe the conditions that existed in the various industries when I was a boy, a good many years ago, but they are better today.

Let me say, perhaps a great deal of what has been said here today ought to be taught in the schools. Perhaps, as has been suggested by one of the speakers, it would be a good idea for the doctors to visit the labor unions once again. Sometimes you forget that we are over 80% of the population. You don't seem to remember that, and you don't seem to remember that our

doors are always open. We are not a secret organization, but are always willing to hear of something that will do something more for the community. We are always willing to work with you. Let me assure the medical fraternity of Massachusetts, the medical association, if they will do what they did once before, send a number of doctors around to visit the various labor organizations, we will guarantee them a hearing and we will do what we can to help them.

EDWARD O. OTIS, M.D. I would say, in summing up what we have heard from others, that the main emphasis in the discussion seems to be upon the education of the public in general hygiene and cleanliness, dwelt upon by Dr. McLaughlin and Dr. Linenthal and others. Dr. Linenthal also suggests that a committee might be appointed to draw up a set of regulations for places where food is prepared and handled; those regulations should be followed by those who employ cooks, handlers and servers of food. These seem to be the main points that were emphasized, education of the people in proper hygiene, and cleanliness, and in the examination of those who handle food, cook food, serve food, or assist in cooking food.

This conference, of course, did not intend to draw up any definite rules to present, but simply, and its object I think has been accomplished, to consider the whole subject of the matter of preparing food, having it cleanly, and having it prepared by those who are not infected with various diseases. It seems to be self-evident that so long as both acute and chronic diseases are so prevalent, particularly tuberculosis, typhoid fever, and so on, that those who are serving food to the general public should in some way be examined and certified, that they are not suffering from either acute or chronic diseases, so that those partaking of food in restaurants and hotels shall be safeguarded. If this conference has simply set us to thinking about this matter it has accomplished its purpose.

In behalf of the conference I wish to thank those who have been kind enough to give us their attention.

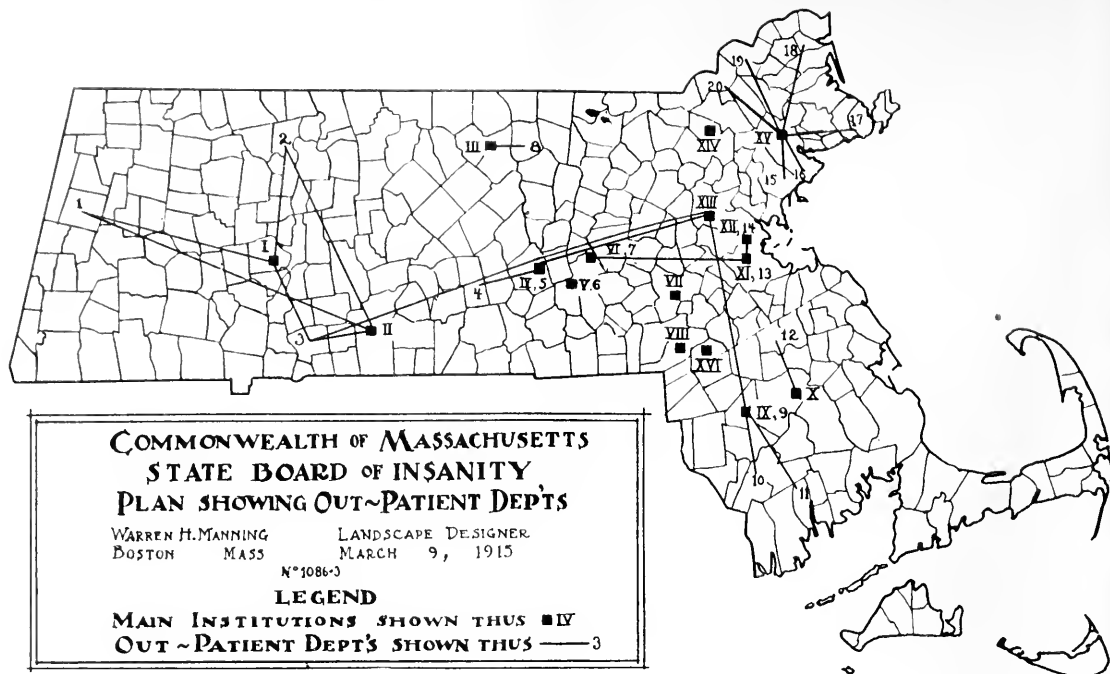
(The meeting was then adjourned.)

NOTE ON RECENT EXTENSION OF OUTPATIENT WORK IN MASSACHUSETTS HOSPITALS FOR THE INSANE.*

By A. WARREN STEARNS, M.D., BOSTON.

ONCE more Massachusetts has taken the lead in forwarding the scientific and human care of the

* Being State Board of Insanity Contributions, No. 40 (1915.9). (Bibliographical Note.—The previous State Board of Insanity Contribution (1915.8) was by E. E. Southard, entitled "On the Direction of Research as to the Analysis of Cortical Stigmata and Focal Lesions in Certain Psychoses," published in the *Transactions of the Association of American Physicians for the Year 1914*.)



mentally ill. That the care of such patients is part of the duty of the state has been recognized for more than eighty years, and eleven years ago Massachusetts took upon herself the work of maintaining and treating all dependent insane. The Massachusetts School for the Feeble-Minded has conducted a clinic once a week for more than twenty-five years, but till recently, this has been the only activity of any hospital staff outside the walls of its own buildings. Since 1885 the Massachusetts Board of Insanity has maintained a family-care service, during which time 1242 patients have been boarded out in homes. Still more recently several hospitals have taken up this work, and some have done a considerable amount of after-care and social service work. On Jan. 1, 1913, the Psychopathic Hospital in Boston opened the first full-fledged out-patient department to be conducted by any hospital for the insane in this state. Success was immediate, over 1000 new patients visiting the clinic during the first year, and active social service and after-care was begun.¹ In August, 1914, the Board of Insanity determined to make this work state wide, and each hospital was asked to arrange for an out-patient department as such. The work of these departments was divided, roughly, into four parts, namely, the clinic, after-care, family care, and mental hygiene. Most important, perhaps, are the clinics.² Because of varying conditions, each hospital was left to its own resources in formulating a plan for this work. All that was desired was that a clinic should be convenient for each large city. Where a hospital is in a large city, the clinics are held at the hospital itself, others are held at general hospitals or public buildings in neighboring cities. These clinics are conducted

by members of the staff of the nearest hospital. Some hospitals conduct but one clinic, while one conducts as many as six. They vary in frequency, from one which is daily (Psychopathic Hospital) to several which are monthly. Doctors in the community are notified of the dates of such clinics and are invited to send patients for consultation or treatment. Also, advice and treatment is given without charge to all cases of nervous or mental disease that apply, especial attention being given to former hospital patients. After-care and social service in the state hospitals are nearly synonymous, and more than ten institutions are doing this work to a greater or less extent. The clinics are of especial value in after-care, as patients find it more easy to report when near. As rapidly as possible the state family-care patients are being turned over to the hospital nearest their boarding place and the hospitals themselves are placing patients out rapidly. There is no doubt that all of this out-patient activity is the most practical sort of mental hygiene, but an additional effort is being made to interest the medical profession in the work of the hospitals, and many of the speakers for the Massachusetts Society for Mental Hygiene are in the state service. This vast movement is a two-edged sword, for important as it is to patients and community, it is of equal value in the socialization of the hospitals.

The accompanying map illustrates the work in a concise manner. The Roman numerals show approximate hospital locations and the plain numerals indicate clinics, the lines connecting each hospital with the clinics which it is conducting in whole or in part.

HOSPITALS.

- I. Northampton State Hospital. Clinics at Pittsfield (1), Greenfield (2), and Springfield (3).
- II. Monson State Hospital. Clinics at 1, 2, and 3, with Northampton.
- III. Gardner Colony. Clinics at Fitchburg (8).
- IV. Worcester State Hospital. Clinics at Spencer (4), and Worcester (5).
- V. Worcester State Asylum. Clinics at Worcester (6).
- VI. Westboro State Hospital. Clinics at Westboro (7), and Boston (13).
- VII. Medfield State Hospital. No clinic.
- VIII. Wrentham School. No clinic.
- IX. Taunton State Hospital. Clinics at Taunton (9), Fall River (10), and New Bedford (11).
- X. Bridgewater State Hospital. Clinic at Brockton (12).
- XI. Boston State Hospital. Clinic at Boston (Psychopathic Hospital) (14).
- XII. Psychopathic Hospital. Clinic at Boston (14). Dept. Boston State Hospital.
- XIII. Massachusetts School for the Feeble-Minded. Clinic at Waverley and also joint clinic at 3, 5, and 9 with Northampton, Worcester and Taunton resp.
- XIV. State Infirmary at Tewksbury. No clinic. It is hoped that one will be located at Lowell later.
- XV. Danvers State Hospital. Clinics at Lynn (15), Salem (16), Gloucester (17), Newburyport (18), Haverhill (19), and Lawrence (20).
- XVI. Foxboro State Hospital. No clinic.

REFERENCES.

¹The After-Care Program and Results of the Psychopathic Hospital, Boston, 1913-1914, BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxxi, No. 23, p. 850.

²For detail of organization see Massachusetts State Board of Insanity Bulletins, Nos. 1, 2, 3, 4 and 5.

Reports of Societies.

AMERICAN ASSOCIATION OF IMMUNOLOGISTS.

First Annual Meeting, held in Atlantic City, N. J., June 22, 1914.

The President, DR. GERALD B. WEBB, of Colorado Springs, Colorado, in the chair.

A Historical Sketch. DR. MARTIN J. SYNNOTT of Montclair, N. J., gave a brief account of the way in which the idea of this society had been conceived and of the manner in which its organization was effected. He stated that the idea had first occurred to him, in 1912, that a "Society of Vaccine Therapists" made up of men who had worked in the Praed Street Laboratories might prove mutually advantageous to the members. He had therefore written to the men in the United States and Canada who had taken the course in the Inoculation Department of St. Mary's, and later to those who had studied with Metchnikoff, Ehrlich, Wassermann, and in some of the other famous laboratories of Europe. Dr. Gerald B. Webb had suggested the more concise and inclusive title for the organization, "The American Association of Immunologists," thereby widening the scope of the society beyond the original conception of the speaker. A first attempt of organization was made in Washington in May, 1913, during the time of meeting of the Association

of American Physicians, but was not consummated until June 19, 1913, at Minneapolis, Minn., during the session of the American Association. They had now sixty charter members and eight applications for membership. The speaker predicted that they would in a few years be one of the most important medical organizations on this continent, and said he believed with Sir Almroth E. Wright that the physician of the future would be an immunologist.

The Production, through Immunization, of Specific Ferments against Bacteria; as Detected by the Abderhalden Test. MR. GEORGE H. SMITH of Glenolden, Pa., presented this paper which was based on the fact first demonstrated by Abderhalden in his pregnancy reaction, that specific proteolytic ferments were elaborated by the body in response to the parenteral introduction of foreign protein. The writer stated that they had proposed to test the limits of this specificity of ferment production by employing bacterial proteins. Rabbits received immunizing courses with *Staphylococcus aureus*, *Staphylococcus albus*, *Streptococcus*, *Pneumococcus*, *B. influenzae*, *M. catarrhalis*, and with a mixture of all. The substrates were prepared from the organisms by washing and drying heavy suspensions. The technic of Abderhalden was employed, using one and one-half c.c. of serum and ten mgrs. of the substrate. The results demonstrated that each serum was able to effect a marked degradation of the homologous substrate, while with the other substrates reactions were negative. Several slight non-specific reactions were obtained with *Streptococcus* and *Staphylococcus albus* substrates. It had been demonstrated that these were due to accidental infection. Sera from rabbits immunized with the mixture degraded all the substrates. The results indicated a relatively high degree of specificity in ferment production.

Professor E. C. L. MILLER of Richmond, Va., said that Mr. Smith had given a very good demonstration of the problem he had attempted to solve. From the biological standpoint it fitted in with and corroborated what they had been thinking for some time. It was obvious that a unicellular organism must of necessity form a ferment if it was to live. If the protein food materials outside the organism were insoluble, as they often were, they must be made soluble by digestion that they might diffuse into the organism. To accomplish this the unicellular organism separated from itself something that they had designated an enzyme, and this power of enzyme formation was one of the striking and essential characteristics of unicellular organisms. It was becoming clearer and clearer that a human body was made up of a mass of cells that were in many respects still unicellular creatures; Nature in working up from the unicellular to the multicellular had not so much produced a new kind of creature as a colony or interdependent community of unicellular forms, each one of which to a large extent retained its primitive functions. The function of reproduction was well shown in the process of repair. The function of motion was uncertain in even the unicellular forms. The function of enzyme formation was probably involved in all cell nutrition and could now be demonstrated in the laboratory by means of the Abderhalden reaction. That each cell maintained to a large extent an independent existence capable of motion, nutrition, reproduction, and response to stimulation had lately been demonstrated by the actual cultivation of tissue cells without the

body. All these factors worked together and tended to build up a view of the nature of our bodies that they had not held before. This work of Mr. Smith's showed clearly the specific nature of the ferments produced. He had seemed to show the cells as possessing an intelligence. They were presented with the problem "Devise and produce an enzyme to dissolve the bacteria injected." This was an entirely new problem and yet the cells responded with an enzyme so perfectly adapted to its functions that it would dissolve the substance in question and nothing else. By using such enzymes they often distinguished between substances otherwise indistinguishable.

Experience with Abderhalden Serum Diagnosis Reaction for Carcinoma. DR. OSCAR BERGHAUSEN of Cincinnati, Ohio, read this paper. He said that in their work the technique of Abderhalden had been followed for the most part, the only important deviation being that the serum was subjected to a preliminary dialysis before adding tissue. It was found that the serum of carcinomatous patients was most apt to digest tissues which corresponded most closely to the affected region of the patient. These results led to the conclusion that probably the embryonal origin was of some importance and according to this assumption those tissues that most probably represented the anatomic pathology of the case were selected. For the most part it was found that serum from a carcinoma patient digested tissue of the same origin as the affected tissue. Although serum usually digested only certain tissues, contrary results were occasionally obtained. The results of cases studied showed that with the exception of one case each of pregnancy, elephantiasis, empyema of the thorax, and tuberculosis of the spine, all control cases gave negative reactions. Serum from malignant cases digested some form of malignant tissue in every instance.

Abderhalden's Pregnancy Test. DR. WILLIAM WHITRIDGE WILLIAMS and DR. CLARENCE B. INGRAHAM of Denver, Col., presented this communication. After giving a brief explanation of the theoretical basis of the Abderhalden test, they stated that it had been applied to known and doubtful cases of pregnancy. Aside from the strict observance of the Abderhalden technic, the writers emphasized that the blood should be taken from a convenient vein under strict aseptic precautions with a dry needle kept in a sterile container. The serum should be allowed to clot spontaneously as centrifugalization frequently caused hemolysis. The serum should contain as few dialyzable substances as possible; it must be absolutely free from hemoglobin and from formed elements. If any of these conditions were disregarded, experience had shown that incorrect results were obtained. In the series of cases tested only two were of value differentially. One was a fibroid of the uterus and the other an ovarian cyst. Both gave negative reactions. The earliest case to give a positive reaction had missed menstruation only four days. Another case eleven days postpartum reacted positively. Observations of toxemic cases with albumin in the urine and increasing blood pressure, gave very slightly positive results with both the dialysis and optical methods. This confirmed the results obtained by Rubesamen in eclampsia cases. The test for pregnancy as worked out by Abderhalden might be considered a definite and reliable reaction.

Chronic Infections and Recovery without Immunity. DR. A. PARKER HITCHENS of Glenolden, Pa.,

read this paper. He stated that in the parenteral digestion of bacteria, the bacterial proteins were digested by the specific ferments in order that they might be eliminated from the tissues. This effect sometimes failed while the poisonous action of the other part was always manifested. This being the case the suggestion forced itself upon them that there was a physical basis underlying the action of these two parts. That was to say the action of the poisonous part never failed because it was diffusible and the tissue offered no barrier to it, while the non-poisonous part was not diffusible and under certain conditions the collection of cells in which it was located did not permit it to reach those cells capable of responding to its action. Accordingly, on the supposition that the molecule of the poisonous part was relatively small and that of the non-poisonous part relatively large they might divide infections into three classes: 1. Those in which the bacteria were surrounded by a firm wall of inflammatory tissue so dense and so perfect that antibacterial ferments were unable to penetrate the bacteria. The non-poisonous part liberated by autolysis or by ferments within the focus of infection did not escape through the capsule and the resistance of the host was not increased. 2. Those in which the zone of inflammatory tissue was less dense and less perfect. The non-poisonous part of the protein molecule could not penetrate the barrier of inflammatory tissue, but specific ferments formed as a result of vaccination or auto-inoculation might penetrate in sufficient quantity to give positive therapeutic results. The staphylococcus furuncle was an example of this class. 3. Those in which the infecting bacteria were not surrounded by a zone of inflammatory tissue which inhibited the activity of the non-poisonous part and the resultant newly formed ferments came in contact with the bacteria without hindrance. The self limited infections like typhoid fever were examples of this class. For obvious reasons infections belonging strictly to the first class could not be benefited by vaccine treatment. In the third class one might confidently expect much benefit from such treatment. Typical infections of the second class were no more difficult to treat than those of the third class. The diagnosis was made and the vaccine injected; as soon as the ferments had been produced in sufficient quantity, the infection was overcome and the patient recovered. Such simple technique was effective in relatively few diseases, but one must conclude that all other infections belonged to the first class; by far the great majority should be placed in the subvariety of the second class. Although they might react with little or no benefit to the mere injection of the vaccines, careful examination of other factors would reveal that with accessory methods of treatment positive results might be obtained.

PROFESSOR VICTOR C. VAUGHAN of Ann Arbor, Mich., said that he and Dr. Wheeler had hit upon a method of splitting up bacterial proteins to get the poisonous and the non-poisonous portion. The poison was not destroyed by alcoholic solutions of potash 1/10 to 2/10 of one percent. They had tried this and were able to split up colon, typhoid, and other pathogenic bacilli into poisonous and non-poisonous groups; they then tried the non-pathogenic organisms and found the same thing. The bacterium which produced the largest amount of protein poison was the *B. prodigiosus*. In round numbers it gave one hundred times as much poison per milligram as the anthrax bacillus. The conclusion

they reached from this was that the infectious character of anthrax was not due to the poison it liberated but to the capacity of the anthrax bacillus growing in the tissues. They tried animal proteins, serum albumin. They also found poison in vegetable proteins and as a matter of routine tested the non-poisonous parts and to their surprise these gave at least a certain degree of immunity to the living germ. They had split edestin, which many claimed was a pure protein body, and got the poisonous constituent out of it. They went over a great many proteins and made the statement, subject to revision after more extended research, that all proteins contained a poisonous group. Of all the papers on experimental work produced within the last few years there were only two which appeared to be contradictory to this theory, one by Auer and Van Slyke and one by Gibson, published in the *Philippine Journal of Science*. The work of White, Avery, and Wells seemed to point to the fact that the protein molecule did contain sensitizing groups. The Abderhalden test was a support to the theory of bacterial ferments and it was a biological law that when a living cell was stimulated by a foreign protein it tended to produce a ferment which digested that protein. If this were a law, further investigation might render protein sensitization of value in the prevention and treatment of disease. Every cell in the animal body must produce its own specific ferment, it could not receive and utilize its food in any other way. If one could educate the cell to produce a ferment which it had not produced, and he believed they did this with typhoid vaccination, the most reasonable explanation was that the body cells learned to digest typhoid bacilli. Dr. Vaughan said that he regarded the carcinomatous cell as a cell so modified that it produced specific ferments. The work done by J. W. Vaughan on cancer fitted in with this theory. He sensitized animals with cancer residue or the whole cancer cell. This led to an increase in the large mononuclear cells in which a ferment was found which when injected directly into cancerous tissue produced in the patient all the symptoms of anaphylactic shock. He had experimented with this ferment and was inclined to say at present that the poison in its purest form was not a protein, whether it was the histamine of Barger and Dale or some closely related substance, he did not know. He had made a great many experiments with the non-poisonous part of the tubercle bacillus and while he was not ready to publish his experiments, thought he might say that the non-poisonous part of the tubercle bacillus did not protect guinea pigs in any way from inoculation with tubercle bacilli. He thought it was harmful, for those treated died quicker than the others that were not so treated. In a great many guinea pigs, in the later stages of tuberculosis, he had injected the non-poisonous part and within one-half hour the temperature began to fall and continued to fall for two or three hours. This hastened the splitting of the tubercle bacilli. With rabbits the non-poisonous part apparently emphasized the resistance to the tubercle bacillus, but rabbits were irregular in their reaction toward the tubercle bacillus so they could not draw any conclusions. The non-poisonous portion of the tubercle bacillus was not harmful if given to rabbits intravenously.

Blood Platelets and Immunity. DR. GERALD B. WEBB of Colorado Springs, Col., presented this paper. He reviewed the history of blood platelets and showed that they probably contained or supplied

opsonin. Blood platelets were found to be increased by an altitude of 6000 feet, also by hyperemia of the marrow, and in carbon monoxide poisoning. Blood platelets were always increased in tuberculosis. The author found them increased in measles during the attack. They were found increased in pellagra. Preliminary experiments suggested the possibility that the blood platelets could sensitize tubercle bacilli.

The Influence of Vaccine Therapy on Blood Morphology. DR. FREDERICK E. SONDERN of New York City said that the cause of vaccine therapy might be furthered by observing the relation between the administration of vaccines and the leucocyte count, the differential count, and the exact degree of existing anemia. No work had yet been done with this point particularly in view. On those acute general infections in which vaccine therapy had been supposed to be of benefit, blood examinations had shown hyperleucocytosis with a decreased polymorphonucleosis. Even fatal cases showed a slight improvement in the blood picture with the use of vaccines. In reviewing the subject of vaccine therapy in acute general infections, it was necessary to state that while it had met with some success in practice, it was still open to question from a theoretical standpoint and should be considered as purely experimental. Autogenous bacterial vaccines had proved of value in cases of localized chronic infection. These were now used without the determination of the opsonic index. Further investigation should be given to those cases in which vaccine therapy was not successful. The successful use of vaccine therapy in chronic local suppurative processes seemed to cause an increased leucocyte count, a decrease in the relative lymphocytosis, and improvement in the anemia. In cases aggravated by vaccine treatment the leucocyte count was lower than before treatment, the relative lymphocytosis is more marked, and the anemia increased. Further investigation was necessary to determine whether those blood changes were constant, and whether they might be taken as an index of the utility of vaccine therapy.

DR. WILLIAM EGBERT ROBERTSON of Philadelphia, Pa., said that he had been interested in the clinical phase of chills in typhoid fever. The chill seemed to have a beneficial effect and was usually followed by a lower temperature, going to normal in a few hours and gradually rising again. Usually convalescence occurred. In the course of typhoid fever there was a very distinct lowering of the polymorphonuclears with relatively greater increase in the lymphocytes. Giving the bacterins in large doses, when it was possible to make a clinical impression on the case, gave the same results, seeming to indicate that the cause of the chill was essentially acute bacteriolysis.

Vaccine in Relation to Mouth Infection. DR. JOSEPH HEAD of Philadelphia, Pa., read this paper, in which he contended that the treatment of mouth infections should include the removal of all infecting masses by local surgical treatment, and application of mouth washes, and a more or less extensive treatment with vaccines. As mouth washes a one per cent. solution of hydrogen peroxide made slightly alkaline, or sodium silico fluoride in aqueous solution of a strength of 0.61 per cent. might be recommended. Their effect, since they were not germicidal, might possibly be due to a sensitization of the bacteria, thus allowing a more effective action of the body ferments. In connection with local treatment the vaccines gave excellent results. A

stock vaccine was used containing the bacteria most frequently found in forty-two cases examined. The writer gave the technique for removing material from infected pockets for the preparation of an autogenous vaccine. The course of the treatment should be regulated with great care, according to the presence or absence of reaction. The blood count was of interest and might prove of value as a guide to dosage. The writer reported cases which showed the value of vaccine treatment in mouth infections.

Complement Fixation Tests in Infective Deforming Arthritis and Arthritis Deformans: DR. T. W. HASTINGS of New York City presented this communication in which he described the method by which the complement fixation test was applied to cases of infective deforming arthritis and arthritis deformans in order to determine, if possible, the etiological factor of the disease. The antigens used included various strains of streptococci, other organisms isolated from cases of arthritis, and polyvalent gonococcus antigens. A Wassermann test was made in every case. Of 43 cases of arthritis, 25 of deforming arthritis have positive complement fixation and positive Wassermann tests; 19 cases of arthritis deformans gave positive tests, 17 reacting positively to streptococcus viridans, and four to a polyvalent gonococcus antigen. The 26 control cases, not arthritis, were with very few exceptions negative to complement fixation tests for streptococcus viridans. The results indicated that the streptococcus viridans was the probably causative agent in many cases of arthritis deformans. About 40% of cases of arthritis deformans should be considered as chronic infective deforming arthritis. The clinical manifestations of this condition were rarely due to gonococcus infections. When a positive reaction occurred with both a streptococcus and a gonococcus antigen, the reaction to the former should be considered the indicator of the causative agent, as there was often a latent infection with the latter in the genito-urinary tract.

Comparative Wassermann, Cobra, and Globulin Tests in Syphilis, with Report of One Hundred and Five Cases. DR. WILLARD J. STONE of Toledo, Ohio, presented this paper. He outlined in detail the technique of the cobra venom test and of Noguchi's butyric acid test for increased globulin, and stated that the comparative work upon the Wassermann and cobra venom reactions in syphilis had given very similar results. Of 105 cases examined by the author there was marked uniformity in these tests. There were some differences in outcome, but the discrepancies were not great. The result of the globulin test differed from the other two reactions in a larger percentage of cases.

DR. JOHN A. KOLMER of Philadelphia, Pa., said that in a certain percentage of cases the cobra venom test was slightly more delicate than the Wassermann reaction, but not when active serum was used. They had been using antigens reinforced by the addition of pure cholesterol for the Wassermann reaction and had not been able to convince themselves that the cobra venom test was as delicate as the Wassermann test thus reinforced. Cholesterol antigens were possibly hypersusceptible and required close controls. Since using cholesterol antigen they had found correct positive results in tertiary syphilis in a larger percentage of cases than with the venom test, though he believed that the venom test did have a distinct value in the diagnosis of lues in certain stages. In the primary

stage hypersensitiveness of the red blood cells rendered the venom test of little value in the diagnosis of syphilis.

DR. RICHARD WEIL of New York City said that the observations of Kobar showed that, in addition to the production of antihemolysis when venom was injected into animals, there was also a change in the red blood cells. He had tested a considerable number of hemolysins in order to see whether under any other conditions similar resistance developed on the part of body cells. It was found that the red blood cells of luetic individuals showed an increased resistance to cobra venom. In regard to the constancy of this fact on which its value as a diagnostic measure depended, they had not made a sufficient number of tests to show anything definite. Others seemed to have established the fact that it was fairly characteristic. While under given conditions the speaker believed that the cobra venom test might not compare equally with the Wassermann reaction, it would in a number of cases show positive results in luetic cases in which the Wassermann would be negative. It was certainly true that the Wassermann showed a considerably larger percentage in the total of positives.

DR. JOHN A. KOLMER of Philadelphia, Pa., said that he also wished to make the point that the protein reaction in cerebrospinal fluid also fell far short of the Wassermann reaction in the diagnosis of syphilis of the cerebrospinal system. The globulin test was uniformly positive in various types of inflammation of the spinal meninges. Hence they used the globulin test to differentiate tuberculous meningitis from the so-called serous meningitis or meningismus. In the latter the protein reaction was uniformly negative, whereas in tuberculous meningitis it was uniformly positive.

A Note on the Preparation of Bacterial Vaccines. DR. WILLARD J. STONE of Toledo, Ohio, read this paper. He stated that some of the reactions following the administration of bacterial vaccines were due to the presence of extraneous proteins, derived either from the culture media or the soluble excretory products of the bacteria. To do away with extraneous proteins all bacterial suspensions used in the preparation of vaccines, with the exception of such fragile organisms as the gonococcus and pneumococcus, were washed with a high speed centrifuge until the supernatant salt solution no longer gave the biuret reaction. In standardizing the vaccines a suspension of living washed organisms was used and Dr. Spooner's method of counting employed.

DR. A. PARKER HITCHENS of Glenolden, Pa., said that the effect of pepto-toxins present in bacterial vaccines was relatively slight because the quantity was very small. When injecting large animals for the preparation of antibacterial sera, enormous doses of the germs were administered and in such cases they saw the possibilities of pepto-toxin. Formerly when it was the practice to inject unwashed bacteria they were compelled to use as a maximum dose a quantity less than 1/1000 the amount that they could now use; since they washed the bacteria even with very large doses, symptoms of anaphylaxis were not observed.

DR. JOHN REICHEL of Glenolden, Pa., related that in attempting to immunize cattle against contagious abortion with suspensions of dead bacilli of contagious abortion they had observed that when unwashed bacilli were injected intravenously, severe and unusual symptoms followed almost immediately.

It was subsequently shown that these symptoms were due to peptotoxin. They had also precipitated peptotoxin with absolute alcohol, and it was shown that the substance remained unchanged after boiling, and that it could be kept almost indefinitely.

DR. JOHN A. KOLMER of Philadelphia, Pa., said that it had been their custom to wash vaccines grown on ascitic agar or blood agar, but not those that were made with organisms that would grow on ordinary nutrient agar. Dr. Kolmer also emphasized the necessity, in counting the bacteria with a counting chamber, of carefully filtering the dye before it was put into the chamber.

DR. WILLARD J. STONE of Toledo, Ohio, said it was necessary to wash all bacterial suspensions grown upon nutrient agar. They had found that such suspensions would give a very marked biuret test after centrifugation. All agar-grown bacteria in salt solution suspensions would give nearly as strong a biuret test at suspensions of bacteria grown upon serum or in bouillon.

Autoserotherapy, also the Therapeutic use of Inactivated Pus and the Value of Tuberculins in Serous Cavities. DR. WILLIAM EGBERT ROBERTSON of Philadelphia, Pa., read this paper in which he gave an extensive review of the work in autoserotherapy from the time of its introduction to the present. As applied to pleural effusions of the serous or serofibrinous type it had proven of value in proportion to the incipency of the tuberculous lesion. The injection of old tuberculin following the fractional withdrawal of fluids from the pleural cavity had given excellent results, especially in cases of long standing. Similar use of bacillary emulsion had proven less satisfactory. The reinjection of inactivated purulent exudates possessed some therapeutic value, although in general the results had not been uniform. Though inactivation destroyed the infectivity of the exudate, it was not necessarily sterile, so that it might possess the properties of a bacterin and also of a leucocyte extract.

DR. G. MORTON ILLMAN of Philadelphia, Pa., said he had had the opportunity of seeing many of these cases Dr. Robertson had reported from the clinical standpoint, and had been struck with the marked regularity of the results. There was through the entire series much that was encouraging in their bacterin work. In the very beginning of their work with bacterial vaccines in America they had issued a warning against the promiscuous use of bacterins and other toxic products and they were beginning to recognize that the things they had feared from the toxic effects of bacterins were coming to pass. Throughout this meeting thus far one thing stood out clearly and that was that the cellular living tissues did react to the call for the production of digestive ferments to any one of a dozen active infectious agents or their products. He believed Dr. Vaughan's hypothesis was a reasonable fact.

The Experimental Basis of Tuberculin Therapy. DR. GEORGE BURTON GILBERT of Colorado Springs, Col., presented this paper in which he reviewed the work done with tuberculin and stated that it was evident that a sound experimental basis for the use of tuberculin had not yet been found. The writer described his experiments with two series of guinea pigs and concluded that the results of the work indicated that the tuberculin treatment as given neither cured nor checked the course of the disease to any important extent.

Tuberculin Therapy: Its Present Imperfections and Future Improvements. DR. F. M. POTTENGER of Monrovia, Cal., read this paper. He declared that the fact that tuberculin had not succeeded in producing immunity was not an indication that it did not cause healing, for definite focal stimulation and healing had been seen to follow the administration of a tuberculin which had failed to produce a high degree of experimental immunity. Many of the faults ascribed to tuberculin were due to lack of skill in administration. Its value could not be estimated from the results obtained from its use upon experimental animals as the natural resistance of such animals was not comparable to that of human beings. Progress in tuberculin therapy depended upon an improvement in both the laboratory production and the clinical application. Work should be done in the laboratory in determining more exactly the constituents of the various tuberculins and in producing tuberculins of a definite standard.

DR. GERALD B. WEBB of Colorado Springs, Col., said he did not think anyone could work in Wright's Clinic and not be impressed that tuberculin did some good. In tuberculin therapy it seemed that they had an instance in which it did not seem possible completely to prove the therapeutic value by animal experimentation.

DR. JOHN REICHEL of Glenolden, Pa., said that the Laboratory of the Pennsylvania State Livestock Sanitary Board was in possession of two cultures of tubercle bacilli, one of the human type without virulence for experimental animals, and another, a bovine culture, which was highly virulent for experimental animals and for cattle. Tuberculins prepared with each of the two strains proved equally satisfactory in the tuberculin test of infected cattle. This would tend to show that tuberculins were not likely to vary so far as virulence was concerned, since the reactions with each of the strains was equally strong.

DR. JACOB BRONFEN BRENNER of Pittsburgh, Pa., called attention to the fact that inherent properties of different cultures of tubercle bacilli might be responsible to a certain extent for discrepancies in the results obtained by different investigators, as it was well known that pathogenic organisms were very apt to change their biological properties when cultivated on artificial media. Indeed it seemed that the greater the difficulty with which the organism adapted itself to the artificial media, the more radical the changes it underwent when once cultivated. The reason for this seemed to be that in such cases the organism must markedly change its metabolism in the process of adaptation to the medium, if it was to become at all adapted. The tubercle bacilli seemed to be a striking exception to this rule as the oldest strains seemed to retain their pathogenicity. The speaker said he had been working with the tubercle bacilli cultivated by Professor Besredka and he entertained the hope that this new tuberculin might be very useful in diagnosis of tuberculosis as well as for treatment of the disease. In his diagnostic work he had obtained 98% of positive results in different cases of tuberculosis and only 8% of positive results among non-tuberculous subjects. It was quite apparent that in many ways the tubercle bacilli of Besredka had acquired distinct properties. It seems quite important that those who reported favorable on their experiments of tuberculin therapy should give as completely as possible the history of the tubercle

baeilli used and the minutest details of their preparation.

DR. F. M. POTTENGER of Monrovia, Cal., said that he wished to make his attitude toward the laboratory clear. He who studied the disease exclusively would fail and likewise he who devoted his attention entirely to the patient; but by recognizing that both must be treated the greatest success would be attained. There was quite a difference between experimental tuberculosis and tuberculosis as they knew it clinically. With reference to the treatment of tuberculosis with tuberculin, one of the most important principles to remember was that the administration of this remedy was an individual matter. A large dose for one patient and for one pathological condition was a small dose for another, and a dose might be exceedingly large if the patient had not been prepared for it, and yet be a small one when this tolerance had been established. Small doses given infrequently increased the patient's sensibility, while large doses given at the right time decreased hypersensitiveness and increased the patient's tolerance, but it must be remembered that large and small were purely relative matters.

Presidential Address. DR. GERALD B. WEBB of Colorado Springs, Col., made this address, taking as his subject, "The History of Immunity." After dwelling on the life and work of Jenner and Pasteur, the speaker said that they were naturally proud to have with them in this country the one who took the next step forward as an immunologist, Theobald Smith, who showed, in 1886, that immunity from hog cholera could be produced by the inoculation of bacterial products. In 1890 came the discoveries of Behring and Kitasato on tetanus and diphtheria, and their anti-toxins for these diseases which found ready acceptance with the profession. Koch, with his products of dead tubercle bacilli was the first to treat disease with what later became Wright's conception of vaccines. Disastrous results followed Koch's experiments, but it was otherwise with Wright who might undoubtedly be regarded as the founder of vaccine therapy. In his own words, "The fundamental principle of vaccine therapy, as I conceive it, is to exploit in the interest of the infected tissues the unexercised immunizing capacities of the uninfected tissues." After paying a fitting tribute to the work of Wright, the speaker said that after eight years' experience with vaccine therapy, and with the passing of the early enthusiasm, it was well to review briefly its present status. Ehrlich, fresh from his recent triumphs in immunology, expected that within the next five years advances in chemotherapy might lead to successful treatment of bacterial diseases in a manner similar to his cure of spirilla infections. Until the predicted discoveries might be made, Wright's vaccine treatment and the improvements which were rapidly developing seemed to be the best treatment at hand. Time had shown that the method was of undoubted value in infections due to many bacteria. On the whole they had to record more failures than successes. One could not but feel, however, that many of the failures must be due to the inability of the protective substance to reach the foci of infection. This had been especially urged by Wright and more recently by Hitchens. The brilliant work of Vaughan, the American pioneer in immunology, seemed destined to aid them greatly. The elimination of the toxic group of the protein molecule had already borne fruit, and the

gratifying results of Rosenow, in his employment of autolyzed products of the pneumococcus in pneumonia, seemed to affirm his theory. It was yet too early to know how much better would be the employment of sensitized bacterins, but the theory of their usage was sound. Drug houses were trying to influence the profession, by broadcast advertising this time, to use dangerous and uncertain remedies to be inoculated in bacterial infections. Members of the Wright school could not too severely condemn the wide-spread use of the so-called phylacogens. Dr. Webb then referred to the work of Flexner, Swift and Ellis, and, in conclusion said he largely agreed with Wright that the physician of the future would be an immunologist, and he would also add, a hygienist. The hygienist and the immunologist must work closely together and Pasteur's prophecy, that it was within the power of man to rid the world of infectious diseases, would be eventually fulfilled.

The Relation of Parenteral Digestion to Immunity. PROFESSOR VICTOR C. VAUGHAN of Ann Arbor, Mich., made this address in which he stated that cells were composed of protein and required protein for their metabolic processes. The protein molecule as such was of no value, that was, digestion must take place before absorption or utilization could occur. In enteral digestion the cleavage was normally complete. Toxic products were further degraded as fast as they were formed. In parenteral digestion an analogous cleavage occurred but the toxic products were carried throughout the organism before further splitting could convert them into simpler non-toxic fragments. All cells were provided with the necessary mechanism to insure a degree of cleavage. This power resided in the ferments elaborated by the cell. Not every cell could utilize the same fraction of the protein complex. Therefore a selective action was manifested, each type of cell producing a definite type of ferment capable of acting upon the material supplied in such a way that it could become incorporated into the cell body. This conclusion reached by reasoning had been demonstrated by experiment upon digestion in unicellular organisms, in bacteria, and in leucocytic digestion. As a defense against foreign protein, as, for instance, invading bacteria, cells elaborated two kinds of ferments, group and specific. The group ferments were normally present in the blood and tissues of all animals. They were, within limits, general proteolytic ferments, but differed in kind, in amount, and in efficiency. Specific ferments were called forth on direct response to the introduction of a foreign protein and were capable of degrading that protein only. The production and presence of these general and specific proteolytic ferments had a very important bearing upon the phenomena of immunity.

DR. JACOB BRONFEN BRENNER of Pittsburgh, Pa., said he would like to know whether a substance like tetanus toxin, for instance, was considered primarily toxic or simply so easily digested by ferments that the toxicity did not require any incubation period to show itself.

DR. VICTOR C. VAUGHAN of Ann Arbor, Mich., replied that of course the word "toxin" had taken on a specific meaning. Toxin was a substance which produced an antibody when injected into animals. It might be said that all toxins were poisons but not all poisons were toxins. The protein poison was not a toxin; it did not produce any

antibody. Whether the toxins were ferments or not, Dr. Vaughan said he could not say. If it could be proved that the toxins were ferments the whole subject would be cleared up. Abderhalden had shown by his optical method that the toxins did split up proteins. That was as far as they had gone. The most rational explanation was that when diphtheria toxin got into a child's body or when it was injected into a guinea pig it split up the protein of the body and set the protein poison free. It was the protein poison that killed. He did not say that this had been demonstrated, but toxins certainly were closely related to the ferments. They acted in very small amounts, in high dilution, and they were destroyed by high temperatures. The toxin would act in dilutions so great that they did not give the biuret test. That was a still further indication that it was a ferment. Dr. Vaughan said he had an antipathy to calling these ferments anti-bodies; one might as well call pepsin anti-meat, because it digested meat.

DR. JAMES W. JOBLING of Nashville, Tenn., said that Dr. Vaughan had left little to be said. Dr. Vaughan had first aroused his interest in this subject and caused Shrouse and himself to study the cleavage products of proteins when acted upon by the leucoprotease of human leucocytes. They were able to obtain toxic substances in this manner and by fractionating the products, they found that the toxins were present in the protease fraction. They were unable to say whether there were actually primary proteases, or merely substances which were carried down mechanically with this fraction, though the ease with which they might be made non-toxic by the further action of trypsin and leucoprotease indicated that they were primary proteases. They had been inquiring into the methods used by the body in preventing the formation of these toxic substances and had found that the antitryptic action of the serum was due to the unsaturated fatty acid radicals of the lipoids. These lipoids might be extracted by chloroform and when the chloroform extract was properly treated the antiferments might be obtained almost quantitatively. The serum treated with an excess of chloroform lost entirely its antitryptic action and it also lost its activity if treated with an oxidizing agent as iodine. Guinea pig serum from which the antiferment had been removed became toxic for other animals of the same species, and this applied to all sera which they had tested. In the course of their work they had observed that bacteria, kaolin, and other substances would remove the antiferments from the serum and render it toxic. This was important in view of the work done with the so-called anaphylotoxins, and also suggested the possibility of there being a true auto-intoxication due to local or generalized absorption of antitrypsin. It was also possible that some of the metabolic disturbances leading to cirrhosis of the organs, etc., might have their origin in a disturbed ferment.

When Dr. Vaughan stated "that live bacteria ingested proteins," did he mean that the bacteria took up and assimilated native proteins, or did he use the term in a more general sense and include the lower cleavage products?

DR. VICTOR C. VAUGHAN replied that he did not believe that any cell took a protein and absorbed it as a whole, but it might absorb it without splitting it far enough to liberate the poisonous group. He thought they could claim pretty good evidence that no cell could take a foreign protein and build it

directly into its body. Dr. Vaughan also discussed the relation between the antitrypsin and the trypsin of the blood. Here lay a most important field of investigation. The balance between the proteins present in the blood and the proteolytic ferments must be something which was capable of the nicest kind of adjustment. From what he had said one could readily see that while he believed that the ferments of the body destroyed the invading organism, life might be saved by an abundance of the antibody preventing the too rapid action of the substance which was destroying the bacteria.

Demonstration of a Simple Method of Making Cultures from Tissues, and Its Application in Arthritis Deformans. DR. EDWARD C. ROSENOW of Chicago, Ill., presented this paper in which he stated that up to the present time there had been no systematic bacteriological examination of the tissues of the body during infection. The author had devised an apparatus which was efficient for this purpose and which he described fully. In preparing cultures from tissue emulsions, it was advisable to plant the emulsion deep in rather tall tubes of aseptic dextrose agar. With this method of planting there were afforded all the gradations between aerobic and anaerobic conditions, and growth was obtained from organisms ordinarily hard to cultivate. The method described had proven particularly successful in cultivating cases of arthritis deformans. Streptococci, staphylococci, and organisms resembling *Bacillus mucosus* and *B. welcheii* had been isolated from 54 cases. Cultures made from the joint and also from the lymph gland draining the joint had frequently yielded the same organism. This fact would be of service in studying arthritis deformans. It would be of interest to discover how this micro-organism acted upon the body to produce this form of disease.

DR. VICTOR C. VAUGHAN of Ann Arbor, Mich., said he had followed Dr. Rosenow's work and believed it to be of the greatest importance scientifically and practically.

The Intraspinal Treatment of Syphilis of the Central Nervous System with Salvarsanized Serum of Standard Strength. DR. HANSON S. OGILVIE of New York City read this paper. He stated that in order to reach the diseased areas in syphilis of the central nervous system, intraspinal treatment as introduced by Swift and Ellis was strongly recommended. The author based his preparation of salvarsanized serum upon the method of Swift and Ellis, but he prepared his serum by adding salvarsan and subsequently heating *in vitro* so that the strength of the curative agent might be regulated. Thus he obtained a serum of known salvarsan content. With a carefully perfected technique of preparation and administration of the serum there was little danger of severe reaction. In fifty percent of the treatments there was no reaction of any kind beyond a slight temporary weakness. It was important that the dosage should be small—within 1.0 mg. The results of the cases studied demonstrated that the laboratory evidences of active syphilis, as shown by the Wassermann reaction, in both the blood and spinal fluid and the cell count and globulin content, were reduced to a greater or less degree in every instance. In the majority of cases there was marked clinical improvement. The method was of interest because it furnished the means of giving salvarsan in small doses intraspinally without danger to the patient.

Book Reviews.

Metabolism in the Exudative Diathesis. By ALBERT NIEMANN, M.D., Berlin. Bonn: Marcus and Webers. 1914.

This monograph presents the results of a clinical and laboratory experimental investigation on metabolism, based on a study of three children with supposed exudative diathesis. The author concludes that in every case there was a notable increase of heat formation and that in two the carbon dioxide production was exalted. He believes that the nature of the exudative diathesis rests on a disturbance of metabolism, which he has for the first time demonstrated. The work, which is chiefly of interest to experts, is illustrated by twenty-eight tables and five graphic charts. It is a typical piece of Teutonic investigation.

The Prophylaxis of Malaria, with Special Reference to the Military Service. By CHARLES F. CRAIG, M.D. Washington: Government Printing Office. 1914.

This bulletin (No. 6) from the office of the Surgeon-General of the War Department, presents an excellent laboratory and field study on the prevention of malaria by screening and by mosquito extermination. It is admirably illustrated with five charts, twelve full page plates and three figures in the text; and there is an excellent terminal bibliography of seventy titles. The work represents one of the important departments of activity of the army medical service and is a valuable contribution to the literature and knowledge of the subject.

Transactions of the National Association for the Study of Pellagra. Second Triennial Meeting, Columbia, S. C. The R. L. Bryan Company. 1914.

This belated volume records the proceedings of the second triennial meeting of the National Association for the Study of Pellagra in the fall of 1912. These consist of a series of papers by various international experts, conveniently grouped under headings of etiology, epidemiology, local history, diagnosis, laboratory investigations, clinical features, treatment and miscellaneous aspects. Not all the papers read at the meeting are here presented owing to interference with return of proof by the European War. There are several charts and maps illustrating the distribution of the disease in this country. The third triennial meeting of the Association is to be held next summer at a place not yet selected.

Public Health Laboratory Work. By HENRY R. KENWOOD. Third Edition. New York: Paul B. Hoeber. 1914.

The subject matter of this book is considerably more limited in its nature than the title would imply, since it deals almost exclusively with the chemical side of public health laboratory work. The bacteriological side of the subject is given but passing notice. An introductory note describes and gives directions for the use of chemical apparatus used in health laboratories.

The subjects considered are the examination of water, sewage, soil, air, food and disinfectants. The various processes are described in an exceptionally clear and concise manner, and are accompanied by sufficient theoretic discussion to make their use intelligible. It would be well if more distinction were made between the tests commonly used as a routine and those of less important or only occasional use. This work, like many of foreign authorship, is handicapped from the fact that many of the methods are not those usually employed in this country.

The Heart in Early Life. By G. A. SUTHERLAND, M.D., F.R.C.P., Senior Physician to the Hampstead and Northwest London Hospital, Physician to Paddington Green Children's Hospital. London: Henry Frowde and Hodder and Stoughton. 1914.

Dr. Sutherland in this admirable little book in the series of Oxford Medical Publications, emphasizes the importance of polygraph tracings in the diagnosis of cardiac conditions in childhood. He calls attention to the frequency of irregularities of the pulse in childhood, explains the various types and emphasizes the facts that they are not signs of heart disease and do not require treatment. He also calls attention to the frequency of murmurs "about the heart" in childhood and that they do not mean organic disease. He describes three types,—the pulmonary systolic, the cardio-pulmonary and the systolic murmur of cardiac debility. He calls especial attention to the frequency of subjective symptoms pointing to the heart in children, which are really manifestations of a neurasthenic state, and to the absence of subjective symptoms when there is disease of the heart. He notes the frequency and relative unimportance of acute dilatation of the heart in childhood. He attributes this to the fact that the tonicity of the heart muscle is not as well developed in childhood as in later life. The chapters on valvular murmurs and on treatment are remarkably good and full of common sense. The whole book shows that the author is thoroughly familiar with heart disease, and its peculiar manifestations in childhood. It will well repay everyone, whether a pediatrician or not, to read this little book most carefully.

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TYPHOID FEVER IN THE CITIES AND TOWNS OF NEW YORK DURING THE LAST DECADE, AND DISINFECTION BY CHLORINATION OF PUBLIC WATER SUPPLIES IN THE STATE.

CONTAMINATED water being the chief of the many agencies by which typhoid is spread, improvement in the character of public water supplies naturally constitutes one of the most important factors in successfully combating the disease, and is a matter of vital interest in every community. In the latest issue of *Health News*, the monthly bulletin of the New York State Department of Health, there is presented a series of curves which show in graphic form, like the elevations and depressions of a temperature chart, the prevalence of typhoid fever in the cities and towns of over ten thousand inhabitants in the state, from 1904 to 1914, inclusive. From this showing it is seen that fifteen of the forty-five cities and smaller places have a record of typhoid rates almost uniformly below 20 per

100,000 for the whole period of eleven years, and it is found that in this, which may be called list of honor, are included all the first and second class cities, except Troy, and six cities of the third class. Eleven other of the communities have had generally satisfactory typhoid rates in recent years, but either high rates during the early part of the period in question or occasional epidemics during its course; and all but one show rates under 20 per 100,000 for the year 1914. In the case of Auburn, Elmira, Poughkeepsie, Rensselaer and Rome, which are on this list, and of Cohoes and Elmira, which are not charted like the rest, it is stated that the more recent decrease in the typhoid death-rate was definitely associated with improvements in the public water supply. The remaining seventeen cities and villages, among which Troy is included, show more or less consistently high typhoid rates; but, taking the year 1914 alone, Fulton, Kingston, Little Falls, Middletown, Plattsburg and Loekport should be removed from this last list, and in the case of Loekport the reduction in typhoid was directly due to chlorination of the public water supply. In this connection it is noted that Ithaca, Newburgh, North Tonawanda and Oswego have recently taken steps to have their supplies purified by the same method. In the year 1914 the six highest typhoid death-rates in the state were, 61 at North Tonawanda, 41 at Dunkirk, 34 at Troy and Corning, and 33 at Hudson and Watervliet, and in each one of these instances, with the possible exception of Troy, the public water supply is known to have been subject to serious contamination. In well-protected communities typhoid fever rates are now falling rapidly to 10 per 100,000, or below; so that if any city or town has a rate of 20, or over, there is urgent need that serious attention should be given to its water supply and other local sanitary conditions.

In the same issue of *Health News* is published a paper on the disinfection of public water supplies by chlorination, by Theodore Horton, director of the division of sanitary engineering in the State Health Department. He points out, that while the first practical demonstration of the value of hypochlorite of lime for disinfecting large volumes of water was made in England, almost simultaneously, investigations, which were being prosecuted at the Massachusetts Institute of Technology, attested the utility of this means of disinfection. The first public water supply in this country to be treated by the hypochlo-

rite was that of Jersey City, in 1908, and since then such disinfection has had a remarkable growth, so that today we find chlorination plants in very general use. He remarks, however, that, valuable as the discovery of this method has proved to be in the protection of human life, it is not to be regarded as a panacea for water supply troubles; nor is its practical application always a simple matter. On the contrary, there are some classes of waters which do not lend themselves readily to effective chlorine treatment, and in treating those which do, many difficulties have had to be overcome. In the past two years many improvements have been made in chlorination plants and processes, and the most important of these is the substitution of chlorine gas for hypochlorite of lime. When we consider that chlorine is just as effective as the latter, one can readily understand how, if the gas can be applied directly to the water, the method of treatment may be simplified. This has now been done, and there are upon the market a number of devices for applying chlorine gas which, while somewhat complex in their mechanical working, are durable in material and construction and quite positive in operation.

Up to the present time—and until its efficiency had been clearly demonstrated—the disinfection of water supplies by chlorine has been largely limited to the treatment of water which has first been passed through sand filters. Unfortunately, there are many supplies which are subject to continuous sewage contamination, and hence unsafe, where the municipalities or companies are financially unable at once to meet the expense of sand filter plants. When, therefore, one considers that the cost of a chlorination plant is only a very small fraction of that of such a filter plant, and that the cost of the minute quantity of chlorine required to disinfect the water is almost negligible, there would appear to be no plausible excuse now for any municipality or water company to furnish a community with unsafe water. It is not to be expected that a chlorination plant will make a roily, colored or otherwise physically objectionable water attractive, but, when properly installed and operated, it can be relied upon to destroy disease bacteria, and thus to safeguard the people against water-borne diseases and epidemics. In the state of New York at the present time practically all the larger and many of the smaller water filtration plants are equipped with chlorination apparatus for disinfecting the final effluents from the filters. In

addition to these there are many municipalities, including New York City and Buffalo and various smaller cities and towns, where the water supply is not filtered, but where a chlorination plant is installed and the water disinfected before use. In the paper are cited two striking examples of the efficacy of chlorine treatment for the protection of life and health, illustrating the value of this method in cases of emergency; the places referred to being the cities of Lockport and North Tonawanda, both of which take their water supply from the Niagara River a few miles below Buffalo, which pours its raw sewage into the river.

FEEBLE-MINDEDNESS IN MASSACHUSETTS.

THERE is at present pending before the Massachusetts General Court a bill providing for a third institution for the care of the feeble-minded in this Commonwealth. In this connection there is particular pertinence in a statement recently published relative to the number of feeble-minded in Massachusetts.

In 1912 the State Board of Insanity made a census through correspondence and field work, by means of which 5000 cases of feeble-mindedness were reported outside the state institutions. In 21 towns, however, in which more careful investigation was made, nearly three times as many cases had been found as had been reported through correspondence. On this basis it is estimated that there are probably from 10,000 to 14,000 in this state uncared for by any institution. Beside this approximate number of feeble-minded at large, there were in last October 2664 cases receiving institution care. The hospitals at Waverley and Wrentham are entirely inadequate to provide for so large a number of inmates. They are now accommodating over 8% more than their capacity, and there is a waiting list of 1310 cases for the two institutions. Moreover, a disproportionate number of cases are drawn from Eastern Massachusetts, while the western portion of the state contains relatively as large a number of those needing institution care.

The menace to the state and to local communities by such lack of adequate provision for care of the feeble-minded is obvious. Moreover, to leave these individuals at large makes it impossible to prevent their rapid increase in numbers.

The cost of maintaining the feeble-minded in institutions is far less than the loss involved by leaving them in their homes.

"Directly or indirectly the burden of support for the feeble-minded must devolve largely on the public. The problem is, therefore, where they can be taken care of with greatest advantage to themselves and the community. If they are permitted to remain at large they jeopardize the efficiency of our public schools and other agencies designed for the training of normal children and inevitably lower the moral tone of the community in which they live. They cannot be taught by ordinary methods. Special classes can handle relatively few of them and meet their needs only to a limited degree. Totally misunderstood by the average teacher, on whom their presence puts an unjust strain and anxiety, they are an idle and degrading element in the schools. The resulting truancy, delinquency, immorality, and crime entail a heavier expense on the state than would be required to provide adequate institutional care.

"On the other hand, most of the feeble-minded are capable of some industrial training and may become wholly or partially self-supporting. Thus from demoralizing and destructive agents a wise care and education will transform many into productive members of society. When this is accomplished it may even be possible for some to return to the community if they can be carefully safeguarded against the possibility of injury to themselves or others. But in any case institutional care is an imperative necessity during these years of preliminary training and during the dangerous periods of adolescence and early maturity.

"State schools especially planned and adapted to the needs of the feeble-minded afford the only means we have of dealing with this class which meets the demands of economy, efficiency, and justice. Ignoring, however, the injustice of a policy which treats the normal and the feeble-minded alike, economy alone requires that the feeble-minded be maintained in separate institutions rather than in the regular correctional schools of the state."

On the whole, segregation of the feeble-minded in state schools is an economy, grievous as the financial burden at the time may be. Statistics show that the state of Massachusetts is now employing 36% of all its revenue for charity, a total expenditure of \$6,839,093.59. Yet of all this only 9.4% was spent for the feeble-minded and 50% for those actually insane. This seems a disproportionate amount in view of the inadequacy of present provision for the feeble-minded and the seriousness of the menace which their presence at large in the community constitutes.

The above facts seem to present a conservative statement of the conditions relating to feeble-

mindedness in Massachusetts and therefore deserve serious consideration by physicians and by legislators with reference to the present bill now pending before the legislature. The statement closes with the following conclusions, which are herewith commended for consideration at this time.

"That the overcrowded conditions at Waverley and Wrentham, the long waiting list at both institutions, and the presence of 10,000 feeble-minded at large in the state, demand that more adequate provision be made for their care.

"That without such care this large class of defectives constitutes a grave social menace to the state and imposes a heavy economic drain on the public resources.

"That not only the most humane but the least costly way to handle these unfortunates is by affording them institutional care and protection, and industrial training.

"That there is, therefore, urgent need for the establishment of a third school for the feeble-minded easily accessible to the center of population in Western Massachusetts."

DENTAL REGISTRATION IN MASSACHUSETTS.

THERE is at present pending before the Massachusetts General Court a bill (Senate No. 228) regarding the registration of dentists in this Commonwealth. Only two other states besides Massachusetts now permit the registration of dentists who have received no diploma from a recognized dental school. The present bill aims to remedy this condition in Massachusetts by the provision that,

"Any person 21 years of age or over and of good moral character, who is a graduate of an accredited high school or presents proof of equivalent training and has received a diploma from the faculty of a reputable dental college as defined in this act, shall, upon fulfillment of requirements for applicants as hereinafter specified, be entitled to examination by the board of dental examiners."

The bill further allows the privilege of examination for registration for those who have spent three years at a dental school and who have passed all the examinations of the first two years, although they have not yet received a degree.

Further, the bill provides as a measure of preventive dentistry that any person of good moral character and twenty years of age may qualify

by examination as a dental hygienist and may be given a certificate, allowing him or her "to clean teeth under the direction of a registered dentist of this Commonwealth, in public or private schools or institutions approved by the local board of health."

The JOURNAL has previously advocated editorially the passage of this so-called dental nurse clause, and its incorporation with the legislation regarding the practice of dentistry in this state. The importance of prophylaxis in the prevention of dental caries and its extensive consequent effect on general physical health seem so great that we believe this measure, by making possible more thorough care of the teeth, especially among children, than can be accomplished without excessive expense by practicing dentists, would contribute materially to the advancement and maintenance of the public welfare.

EMPLOYMENT OF PATIENTS IN HOSPITALS FOR THE INSANE.

THE recently published bulletin (No. 7) of the Massachusetts State Board of Insanity for March, 1915, contains a striking statement of the number of patients employed in the various state institutions in different occupations and industries. This survey of occupations for a single day at each of the state institutions under the supervision of the board, shows, in tabulated form, the total number of patients at each hospital on that day, the number employed, those unable to be employed, and the number idle. Stated in percentages the total number of employed in the various institutions was as follows:

At Wrentham, 95%; Gardner, 92%; Monson, 83%; Medfield, 81%; Worcester, 78%; School for the Feeble-minded, 73%, Taunton, 71%, Westborough, 70%; Danvers, 61%; Boston, 60%; Foxborough, 54%; Northampton, 49%; Bridgewater, 42%; and Psychopathic Hospital, 30%. Further tables show the actual number of hours for which patients were employed in these institutions. The bulletin continues with an account of similar work being prosecuted in Illinois, and a statement of the manner in which these methods are followed in the hospitals of Germany and Switzerland. The account is extremely interesting in showing how completely this occupational side of therapeutics seems to be carried out in our state institutions.

MEETING FOR BELGIAN RED CROSS.

IN another column of this issue of the JOURNAL we publish a communication from Dr. Antoine Depage of Brussels to the American medical profession relative to the present urgent needs of the Belgian Red Cross.

Mme. Marie Depage, wife of Dr. Depage, head of the Belgian Red Cross, who has been sent to America to collect funds for the Belgian Red Cross relief work in the field hospitals and trenches, will speak at a meeting for the medical profession on April 14, at 4 o'clock, in the Boston Medical Library.

On the following day, April 15, at the same hour, Mme. Depage will speak at the house of Mrs. Edwin S. Webster, 261 Clarendon Street, Boston.

Invitations to these two occasions have been issued, and it is earnestly to be hoped that a liberal sum may be raised for this important measure of international medical relief.

MEDICAL NOTES.

GRIP STILL PREVALENT IN NEW YORK.—The mortality during the week just passed was noteworthy by reason of the very considerable increase in the number of deaths reported from all causes, the total having been 1831 as compared with 1612 in the corresponding week of 1914, an increase of 219 deaths. The increase in the death-rate was 1.39 of a point, which was equivalent to a relative increase in the number of deaths of 155.

The most potent factor of this increased mortality was the prevalence of influenza in a more virulent form than has happened in some years, with a corresponding increase in the deaths from acute respiratory diseases and organic diseases of the heart.

There were 407 deaths from acute bronchitis, broncho-pneumonia and lobar pneumonia, this number being in excess by 143 deaths of the number of deaths reported from this cause in 1914. In addition to this, the organic heart diseases showed an increase of 42 deaths. The mortality from the infectious diseases—measles, diphtheria, croup, and whooping cough—was slightly in excess of that of the previous year.

The prevalence of influenza made itself felt among persons of every age, but especially was the effect noticeable among the old people over 65 years of age, in which age group the number of deaths was increased by 541. Children under five years of age showed an increased mortality of 54 deaths, and between five and sixty-five years there was an increase of 111 deaths.

In spite of last week's high death-rate the death-rate for the first fourteen weeks of 1915

was only 14.38 per 1000 of the population, as against a rate of 15.57 during the corresponding period in the year 1914, a decrease of 1.19 of a point.

AWARD OF THE SEAMAN MEDAL.—It is announced that the Lewis Livingstone Seaman medal has been awarded to Dr. William C. Gorgas, Surgeon-General of the United States Army for progress and achievement in the promotion of hygiene and the mitigation of occupational disease.

PUBLIC HEALTH ORGANIZATION IN THE STATE OF NEW YORK.—The New York State Department of Health has recently issued as the first part of its thirty-fifth annual report, the report of the public health council. This council, consisting of Hermann M. Biggs, M.D., Chairman, and six other members, clearly sets forth the aims and the organization of its work from its creation in 1913 to December 31, 1914. The first action of the council was to prescribe the qualifications of the various divisions under which the public health law provided for the conduct of the affairs of the state department of health. These divisions were of tuberculosis, child hygiene and of vital statistics. The council next set about prescribing the qualifications of sanitary supervisors of sanitary districts and of the qualifications of public health nurses. The position of sanitary supervisor was voted to be placed under Civil Service rules and of the 141 persons taking the examination in March, 1914, 87 were placed on the eligible list.

The council further framed a sanitary code, the first chapters of which went into effect May 1, 1914. Chapter 1 deals with general provisions, chapter 2, communicable diseases, and the following five chapters cover milk and cream regulations, midwives, labor camps, nuisances and miscellaneous matters such as spitting, common drinking cup and barber shops. This report should be of great interest and value to those engaged in the service of the public health.

The second part of the annual report contains a letter from Dr. H. M. Biggs, as Commissioner of Health, to the Governor of New York, in which he makes an appeal for increased appropriations to carry forward the campaign of education, to extend laboratory facilities for the diagnosis and specific treatment of disease, to safeguard the people against preventable diseases and to postpone the approach of those diseases which are inevitable. He further states that the state department has set for itself the task of saving 25,000 lives within five years, pointing out the fact that in the census of 1913 the death rate of the State of New York was next to the highest, having a percentage of 15.2 per one thousand inhabitants.

NEW RED CROSS BUILDING.—On March 27 the corner stone of the new Red Cross building at Washington, D. C., was laid by President Wil-

son and Ex-president Taft with appropriate ceremonies.

“The new building faces the wide sweep of grounds back of the State Department and White House. The building and site, provided by Government appropriation and private subscription, will be turned over in perpetuity to the American Red Cross. Here the organization will make its permanent home, and the building will house all of the administrative officers in charge of Red Cross work. The commission has at its disposal \$800,000, of which \$400,000 was appropriated by Congress, on condition that the Red Cross raise an equal amount by private subscription. The additional sum was made up by the following subscriptions: James A. Serymsor, \$100,000; Mrs. Russell Sage, \$150,000; Mrs. Edward H. Harriman, \$50,000; the Rockefeller Foundation \$100,000.

“The new building, like most of the others in the stately group about it, will be of white marble and the general design of the structure, its façade, columns, etc., will be on classic lines. A parked terrace will raise the building above the street level, and wide marble steps will lead up to the entrance. A row of twelve Corinthian columns of white marble will stretch across the entire front of the structure, the capitals supporting the copper-finished roof. Two massive bronze entrance doors are one of the striking features of the architectural plans. Within the high-arched vestibule a flight of broad marble stairs will lead to the second and third floors. On the stairway landing a marble tablet will be placed bearing the following inscription:

“A memorial built by the Government of the United States and patriotic citizens to the women of the North and the women of the South held in loving memory by a now united country, and that their labors to mitigate the sufferings of the sick and wounded in war may be forever perpetuated, this memorial is dedicated to the service of the American Red Cross.”

“On the landing will also be placed three allegorical busts in white marble, representing Faith, Hope and Charity. All of the decorations will be marked by dignity and simplicity. The extensive working quarters on the three floors of the building will be equipped to accommodate all the branches of the Red Cross, with its varied activities in peace and war. On the first floor a large assembly room and library will take up all of one side of the building, and will afford a meeting place for the large gatherings of the organization. The central committee of the Red Cross will have special quarters. The War, National and International Relief boards will each have rooms particularly fitted for their special work. The army surgeon in charge of hospital field units and the enrollment of doctors, the first aid instruction department, the Nurses' Enrollment Bureau, the Town and Country Nursing Service and the Christmas Seal Division will all be quartered according to their

needs. Of the \$800,000 available for the memorial, \$357,000 was expended by the commission in the purchase of the site. The entire block surrounding the structure was acquired, and it will be laid out in parking, gardens and suitable approaches. Under the contract for the construction of the building, it will be completed and ready for occupancy by April 20, 1916."

TYPHOID MARY APPREHENDED.—After much difficulty, Mary Mallon, known as "Typhoid Mary," was discovered in hiding at Corona, N. Y., and arrested. She had fled there from the Sloane Maternity Hospital in Manhattan, after the outbreak of twenty-five cases of typhoid had occurred among the nurses and physicians of the hospital. She had been serving as cook at this institution under an assumed name, in spite of the fact that at the time of her release from North Brother Island on Feb. 19, 1910, she had signed a promise that she would not again take a position as a cook. Mary Mallon first came into public notice during an outbreak of typhoid fever at Glen Cove, N. Y., in 1906, when twenty-six cases developed.

RED CROSS CONTINGENT SAILS FOR SERBIA.—On April 3 the following members of the American Red Cross Sanitary Commission sailed on the *Duca d'Aosta* for Naples, where they will proceed, under the leadership of Dr. Richard P. Strong of the Harvard Medical School, to Serbia, in an effort to stamp out the epidemics of typhus and cholera raging in that unfortunate country. Dr. Thomas W. Jackson of Philadelphia is chief sanitary inspector of the commission; Dr. Hans Zinsser, bacteriologist; Dr. Andrew W. Sellards, Dr. George C. Shattuck, Dr. F. B. Grinnell, Dr. B. W. Caldwell and Messrs. W. S. Standifer, Luis de la Pena and Hobart D. Brink, sanitary inspectors. They will join Dr. Strong at Salonica. Dr. Strong sailed for Serbia several weeks ago and will be joined by the party at Salonica.

RIISING DEATH-RATE FROM DEGENERATIVE DISEASES.—Professor Irving Fisher of Yale University, one of the directors of the Life Extension Institute, in a recent address before the Twentieth Century Club emphasized the need of personal hygiene to offset the rapidly rising death-rate from degenerative diseases. That the death-rate from infectious diseases is constantly declining is due to the efforts of boards of health and health workers of all kinds, but Professor Fisher states:—

"There is need of a similarly vigorous fight against the degenerative diseases. By the degenerative diseases is meant those which consist in the degeneration, or wearing out, of the vital organs. It may be difficult always to distinguish between infectious and degenerative diseases, but that there is a broad distinction cannot be doubted. Our vital statistics show us that, while the loss of life from infection before middle age has decreased, the loss of life after middle age from

degeneration has increased. The truth is we are witnessing a race between two tendencies, a reduction of the acute or infectious diseases, such as typhoid, and an increase in the chronic or degenerative diseases such as arterio-sclerosis and Bright's disease. Such a process bids fair soon to change our net gain in the average life span into a net loss, unless we attack this degenerative problem very soon.

"The situation is especially alarming for us in the United States, because this tendency toward degeneration seems to be more in evidence here than elsewhere. In the United States the rate of life-lengthening is less than that for Europe as a whole, and our statistics show that the expectation of life after middle age is distinctly declining, while there is an ominous increase in the death-rate from the chief degenerative diseases. The number of people now dying from diseases of the blood vessels is nearly four times as great as three decades ago. This is found in the rural districts as well as in the cities, is found among the native-born as well as the foreign-born, and is found in all classes of males in gainful occupations, where a marked advance appears."

DEFEAT OF NEBRASKA EUGENIC BILL.—The lower house of the Nebraska Legislature defeated, on March 30, the new eugenic marriage bill patterned after the Wisconsin law. The bill was unpopular because women were exempted from its provisions.

NEW JERSEY STATE HOSPITAL, MORRIS PLAINS, N. J.—The thirty-ninth annual report of the New Jersey State Hospital for the Insane, at Morris Plains, N. J., contains the following statistics:

"During the year 2960 patients were under treatment—1500 men and 1460 women. The largest number under treatment at one time was 2522, on Sept. 30, 1914. The number of admissions for the year is 549—275 men and 274 women. There were remaining on Oct. 31, 1914, 2509 patients—1261 men and 1248 women. This is an increase in population of 98 over that shown in last year's report. There were discharged as recovered 83 patients. One hundred and eighty-four died—6.2% of the number treated throughout the year.

ERADICATION OF FOOT AND MOUTH DISEASE.—On Apr. 2, the United States Department of Agriculture issued at Washington a statement to the effect that with the exception of a small focus at Syracuse, N. Y., the recent epizootic of foot and mouth disease in this country is essentially at an end.

"Figures compiled by the department show that 124,141 animals have been slaughtered from the time of the outbreak in October to March 25 last. Interference with the operations of the stock yards at Chicago and other principal shipping points, the quarantining of infected regions and other precautionary measures, it was said, had caused indeterminable losses. Only a few

infected herds have been reported since March 25, and it was said all these had been slaughtered. Concerning the probability of future trouble from the disease, a statement by the department said:

"Although all the infected animals have been killed and buried, it is by no means certain that all possible means of conveying the infection have been destroyed. It is considered inevitable, therefore, that more animals will be stricken, but these should be only sporadic cases, which, if promptly reported, can be taken care of in time to prevent any further serious spreading of the disease.

"The \$2,500,000 emergency fund which Congress places at the disposal of the Secretary of Agriculture to combat contagious diseases, officials of the department said, was practically depleted in financing the war against the disease.

"Preliminary estimates place the actual cost to the Federal Government of animals killed because of the plague infection at between two and three million dollars. The government paid only fifty per cent. of the value of the animals slaughtered, the states, in the majority of cases, reimbursing the others with an equal amount. The total value of animals killed by both the state and federal authorities, therefore, would be between five and six million dollars."

LOOMIS SANATORIUM, LIBERTY, N. Y.—The annual report of the Loomis Sanatorium, Liberty, N. Y., for the year ending Oct. 31, 1914, records the work of that hospital in the care and treatment of tuberculosis. Three hundred and fifty-two patients were admitted during the year. Of the 289 patients to leave the hospital during the year 48 were apparently cured, the disease was arrested in 51 patients and 18 died. Those discharged as apparently cured had been under treatment at the sanatorium for an average number of 28.28 weeks; those discharged with disease arrested had been under treatment for an average length of 32.71 weeks.

FEDERAL CONTROL OF QUARANTINE.—Following the action of the City of Boston in transferring its municipal quarantine function to the National Government, the assistant secretary of the treasury has instituted a further active attempt to obtain federal control also of the quarantine stations at New York, Baltimore and Galveston, the only three which remain under local administration. In a letter on this subject to the governor of New York, the secretary writes in part as follows:—

"The taking over of the quarantine control at these ports on the Atlantic seaboard, it is expected, will have a far-reaching effect on public health in the United States, especially as it refers to the prevention of the introduction of quarantinable disease from Europe.

"Owing to the European war, these diseases, notably cholera, plague and typhus fever, are reported not only to have increased in volume in

certain points, especially in Serbia and Greece, but the spread of these diseases has been great in all directions. On this account the problem of quarantine at the various ports of the United States promises from now on to assume greater importance than ever before.

"Special apprehension is felt as to the chances of infection being brought in after the war is over, when immigration will doubtless increase in volume, and will include men and women from all walks of life from nearly all parts of Europe."

The same reasons which led the JOURNAL to advocate the transfer of the Boston Quarantine Service, make it desirable also that these remaining services should be placed under uniform national control.

HARVARD MEDICAL EXPEDITIONARY UNIT.—Report from Paris states that the Harvard Medical Expeditionary Unit reached Gibraltar safely on March 27 and arrived at Paris on March 30. On April 1, the members of the unit began their three months' term of service at the American Ambulance Hospital at Neuilly, relieving the unit from the Western Reserve University.

PROPOSED CHAIR OF MENTAL DISEASES.—A movement has been initiated under the sponsorship of Dr. Edward H. Bradford, Dr. William N. Bullard, Dr. Walter Channing and Dr. Philip B. Howard to raise a fund of \$150,000 for the endowment of a chair of mental diseases at the Harvard Medical School. The following preliminary statement has been issued by the sponsors.

"The suffering caused by insanity and allied disease is so widespread and so serious that efforts for its alleviation demand the most earnest attention and effective action. There is at present a special and crying need for assistance in this work. The undersigned, therefore, ask for money, viz:

"For research through the neuropathological department of the Harvard Medical School, where special opportunities now exist which should be taken immediate advantage of, and

"For the increase of instruction in the Harvard Medical School, through the endowment of a professorship of psychiatry (insanity and mental disease)—a subject for which adequate teaching has never been provided."

It is earnestly to be hoped that generous subscriptions to this fund may enable the early establishment of this valuable and important chair.

ANIMAL EXPERIMENTATION IN NEW JERSEY.—Report from Trenton, N. J., states that on March 29 the state legislature passed an important bill permitting the Rockefeller Institute for Medical Research to establish a laboratory for animal experimentation in New Jersey. This measure, which had been urgently opposed by anti-vivisectionists, was signed by the governor on April 6. The law provides for the super-

vision of these experiments by the state board of health.

EUROPEAN WAR RELIEF FUNDS.—On April 10 the totals of the principal American relief funds for the European War reached the following amounts:

	N. Y.	N. E.
Belgian Fund	\$1,017,159.19	\$245,979.52
Jewish Fund		56,945.05
Red Cross Fund	477,160.97	127,802.59
Committee of Mercy	141,869.20	
Prince of Wales Fund ...	116,744.48	
Polish Fund	36,454.35	40,336.41
Persian Fund	17,585.50	
Serbian Fund	1,719.00	

BOSTON AND NEW ENGLAND.

FITCHBURG BOARD OF HEALTH.—The report of the Board of Health of Fitchburg for the year 1914 gives a detailed record of the work of the bacteriologist, the agent of the board, the school physician, the school nurse, the board of health nurse, the inspector of milk, the inspector of plumbing, inspector of meats and provisions and inspector of slaughtering. The work of the school physician is especially interesting. During the year 11,373 examinations were made of school children, and 1303 cases referred to the school nurse, who made 1936 calls at the homes of the patients. Six hundred and seventy-eight children were found to have tonsils and adenoids requiring operative treatment. In many instances families, whose financial circumstances did not permit proper attention to the correction of defects, received aid through hospitals and the attention of the school nurse.

LOCAL EPIDEMICS OF MEASLES.—There are at present several local epidemics of measles in various Massachusetts cities and towns. During the three weeks preceding April 6, 400 cases of this disease were reported in Medford, 50 in Melrose, 50 in Malden and 150 in Wakefield. Many of the schools in these communities have been indefinitely closed until subsidence of the infection.

EXPERIMENTAL PATHOLOGY AT THE BOSTON CITY HOSPITAL.—It has been recommended by Mayor Curley to the trustees of the Boston City Hospital that a fund of \$20,000 be established in the pathological department of the institution for the special study of scarlet fever and measles in the effort to determine the etiologic agent of these infections and to discover a means for their cure and for immunization against them.

SOCIAL SERVICE AT THE MASSACHUSETTS GENERAL HOSPITAL.—The ninth annual report of the social service department of the Massachusetts General Hospital shows a commendable growth of activity and efficiency in the work of

this department. During the past year 823 patients were treated, 262 were referred from the children's department, 70 from the orthopedic department, 76 from the nerve clinic and 83 for sex problems. Donations to the general fund amounted to \$11,278.00, to the salary fund \$3,897.96, and for special purposes \$1,783.85. \$5000, as the nucleus of a permanent fund, has been given by Mrs. Shepherd Brooks. The usefulness of the department is dependent on its resources. The treasurer of the Social Service Department, Massachusetts General Hospital, will gladly receive contributions to maintain the rapidly increasing work of this movement.

HOSPITAL BEQUESTS.—The will of the late Frank W. Bolles of Boston, who died in this city on March 30, was filed on April 6 in the Suffolk Probate Court. It contains an immediate bequest of \$10,000 to the Channing Home, and on the death of the sole personal beneficiary, provides that the residue of the estate shall be equally distributed among various charitable institutions, including the Children's Hospital, the Perkins Institution for the Blind and the New England Peabody Home for Crippled Children. A codicil also contains bequests of \$15,000 to the Boston Home for Incurables, \$2000 to the Massachusetts General Hospital, and \$2000 to the Nurses' Alumni Association of the New England Deaconess Hospital.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending April 6, 1915: Diphtheria, 62, of which 5 were non-residents; scarlatina, 110, of which 14 were non-residents; typhoid fever, 2; measles, 183, of which 2 were non-residents; tuberculosis, 61, of which 2 were non-residents. The death-rate of the reported deaths for the week was 20.15.

POSTPONEMENT OF DR. SMITH'S DINNER.—Owing to the temporary illness of Dr. Theobald Smith, the dinner in his honor, to be held on April 17, has been postponed.

Massachusetts Medical Society.

PLYMOUTH DISTRICT MEDICAL SOCIETY. ANNUAL MEETING.—The annual meeting of the Plymouth District Medical Society will be held at the Commercial Club Annex, Brockton, April 15, 1915, at 11 A.M. Officers for the ensuing year will be elected and the annual oration will be given by Dr. Ernest B. Emerson, Medical Director, State Farm, Bridgewater. Subject, "Alcoholism."

ALFRED C. SMITH, M.D., *Secretary.*

Miscellany.

UNUSUAL GUNSHOT WOUNDS.

A CORRESPONDENT in a recent issue of the *British Medical Journal* records several instances of unusual gunshot wounds, and comments on the peculiar vagaries of modern rifle projectiles:

"In one case the bullet had entered just in front of the ear, and having passed through the body of the sphenoid, made its exit at a corresponding point on the opposite side of the face. Its track was perfectly straight, but though the wound was merely one of the face, it nevertheless proved instantly fatal. The reason was obvious on opening the skull and raising the brain. The under surface of the frontal lobes had been reduced to a structureless jelly. The case illustrates what has been said by more than one authority as to the bruising and devitalizing action a bullet may exercise on the tissues if at the moment of impact it is travelling almost at its initial speed. It might, perhaps, be expected that the greater the speed of the bullet the more knife-like would be its action on the tissues, but almost the converse would appear to be the case. The extent of the momentum possessed by a bullet which has not traveled more than 200 or 300 yards leads to the production of waves of force emanating from it in all directions the instant it meets with the slightest resistance; this seems all the more liable to occur if the initial impact of the bullet has not been at right angles to the general surface. In the present case the subsidiary lines of force seem to have been so powerful that even the fact that a bony diaphragm lay between the track of the bullet and the brain did not suffice to protect it. What are probably precisely analogous waves can be produced experimentally in many different ways. If a finger be passed through a basin of water the surface of the latter will be undisturbed if the movement be slow; if quick, a proportionate ripple will result.

"The second case was one in which the bullet had probably travelled a considerable distance—say, 1500 to 2000 yards—before it reached its mark, and its residual momentum was small. The wound was in the forehead and the bullet was found just inside it. Behind the bullet, however, and in a line with the hole in the forehead, was a track leading right through the brain to a distinct bruise on the inner plate of the occipital bone. It was concluded that the bullet, after penetrating the frontal bone and the brain, had struck the occipital bone and rebounded back along its original track. In this case there was no general bruising of the tissues surrounding the track, and it was considered that the momentum of the bullet on impact had fallen so low that when the frontal bone and brain had been traversed the elasticity of the oc-

cipital bone sufficed to drive it back. Cases in which the opposing forces are so nicely balanced must be rare. Clinically the different effect of fast travelling and slow travelling bullets is suggested by the fact that cases in which a bullet has penetrated but not perforated the skull are among the most hopeful of their class. It may be that in the case of the brain quite small differences in the momentum make very great difference in the extent of the injury inflicted. I have in mind cases in which the perforated portions of the brain have been seemingly identical but the clinical phenomena materially different.

"In the third case death was due to a penetrating wound of the chest. The opening was rather larger than is usual with those caused either by shrapnel or rifle bullets. On post-mortem examination, no foreign body of any kind could at first be discovered, but at length a rifle bullet was found embedded sideways in the body of a vertebra, that is to say, the long axis of the bullet was parallel to the long axis of the spinal column. The case was believed to be an illustration of the fact that rifle bullets sometimes turn over in their flight, for the character of the external wound and the position of the bullet in the vertebra were held to prove that it had struck and entered the chest when midway in a revolution round its short axis."

THE IATRO-CHEMICAL AND IATRO-PHYSICAL SECTS.

In a recent publication (*The Chemic Problem in Nutrition*), Dr. John Aulde of Philadelphia presents a sketch of the causative factors in disorders of nutrition as related to diseases of the nervous system. Apart from the clinical merits of his study of magnesium infiltration, the book presents an interesting collateral historical sketch of the iatro-chemical sect which was founded in the latter half of the 17th century:

"According to Sylvius, an industrious student of Van Helmont and Descartes, health depends upon the relation of the fluids, acid and alkaline, their union producing a neutral and milder substance. Two kinds of diseases were distinguished, the result either of acid or alkaline acidity. Among the prominent followers of Sylvius might be mentioned Willis, the celebrated English anatomist; Glauber, the discoverer of sodium sulphate (Glauber's salt), and many others; but iatro-chemistry gradually lost repute, and was completely overthrown early in the 18th century, principally through the teachings of Hoffmann.

"Founded upon more assumption and a smattering of chemistry, with no definite conception of physiology, iatro-chemistry was foredoomed to failure. It seems paradoxical, too, because this was a period of exceptional activity in laying

the foundations of medical science. Such names as Harvey, Steno, Vieussens, Malpighi, Spigelius, Bartholin, Asselius, Pauli, Mentel, Wesling, Highmore, Glisson, Wharton, Leeuwenhoeek, Ruysch, Sydenham, Boerhaave, Stahl, Albertini, Valsalva, Bellini, Swammerdam, Meibomius, Peyer, Duverney, Cowper, all belong to this period, and it is remarkable, to say the least, that they failed to distinguish the normal alkalinity of the building-up, from the normal acidity incident to the breaking-down processes in both animal and plant life."

The iatro-chemical was contrasted with the iatro-physical sect, a school of physicians also arising in the seventeenth century in Italy. The members of the iatro-physical school sought to explain the functions of the body and the application of remedies by static and hydraulic laws. They were earnest students of anatomy and were, perhaps, the intellectual and temperamental antecedents of modern professors of the mechanistic conception of life and its phenomena.

Correspondence.

TUBERCULOSIS AND LOCAL BOARDS OF HEALTH.

WEST NEWTON, MASS., April 2, 1915.

Mr. Editor: At the meeting of the Massachusetts Antituberculosis League yesterday, I was much impressed with the tendency of the readers of papers, especially of those holding state positions, to criticize and blame the local boards of health.

I believe if the readers had been more familiar with the trials and tribulations of local boards they would have been more lenient with them.

When we consider that the local boards are ground between the upper millstone of state statutes passed with little knowledge of or regard for local conditions, and the lower one of the local demand for economy, we should realize that they are to be pitied rather than blamed.

The member of the average local board of health is too often a man who has been appointed because no one else will take the job; he is seldom paid, and when appointed knows little or nothing about public health work, and yet is held responsible for the health of his community and required to pass upon questions of which he knows little.

I say this in the full knowledge that even so, he is an earnest, painstaking man, trying to do the best that he can in spite of his handicaps and that he usually "makes good."

It seems to me that such a man should not be blamed and ridiculed (for I regret to say that he was ridiculed), but should be praised for what he has done and helped to do better.

Too often the law, which he is blamed for failing to enforce, is so framed as to make conviction under it, difficult or impossible or, if he does attempt to punish the offender, the culprit is let off with a reprimand or the case dismissed.

If, instead of blaming the local boards, the state authorities would help them and explain to them how to solve their problems, I believe that we should see a great advance in efficiency in public health work.

When all is said, the state authorities and the local boards of health are but coordinate parts of the great system of health protection and they should work together in harmony, rather than find fault with and seek to make good at each other's expense.

Very truly yours,

FRANCIS GEO. CURTIS, M.D.,
Chairman, Newton Board of Health.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING APRIL 3, 1915.

CONTRIBUTIONS.

Dr. John Lewis Stevens, Mansfield, Ohio.....	\$ 5.00
Hoquiam Surgical Club, Hoquiam, Wash.....	10.00
Dr. J. D. Griffith, Kansas City, Mo.....	5.00
Dr. Philip F. Williams, Philadelphia, Pa....	5.00
Visiting Nurse Association of Chicago, Chicago, Ill.....	12.00
Dr. Burnley Lankford, Norfolk, Va.....	5.00
Dr. Irene M. Morse, Clinton, Mass.....	3.00
The Homochitto Valley Medical Society, Natchez, Miss.....	14.25
Dr. T. L. Macdonald, Washington, D. C.....	10.00
The Yankton District Medical Society, Yankton, S. Dakota.....	50.00
Dr. James D. Voorhees, New York, N. Y.....	25.00

Receipts for week ending April 3.....\$ 144.25
Previously reported receipts..... 5752.25

Total receipts.....\$5896.50
Previously reported disbursements:
1625 standard boxes of food @ \$2.20..\$3575.00
945 standard boxes of food @ \$2.30.. 2173.50
Disbursements for the week ending

April 3:

64 standard boxes of food @ \$2.30.. 147.20

Total disbursements.....\$5895.70

Balance..... \$0.80

F. F. SIMPSON, M.D., Treasurer,
704S Jenkins Arcade Bldg.,
Pittsburg, Pa.

In the ancient times there was a cry from Macedonia "Come and help us." St. Paul took that as the voice of God and responded with spiritual and mental pabulum. Today there is a cry from Belgium "Send us food or we perish." This is just as much the voice of God as the cry that reached St. Paul—and the response is even more necessitous. The pictures of wretchedness in that pitiful land grow more and more appalling from day to day. Miss Winifred Holt, secretary of the New York Association for the Blind, has just returned from Europe where she went in the interest of the blind Belgian refugees. She says there are no exact data but it is estimated that one person in every 1200 in Belgium was either partially or totally blind, or about 8000. When Belgium became the hotbed of war there were thirteen institutions for the blind, deaf and dumb. These were all wrecked and their sorry inhabitants poured forth in a mad rush of surging masses of blind men and women and children, seeking such guidance as they could get groping for places of safety. They must now be scattered among the helpless, starving, unfortunate refugees standing in the breadline that stretches all over Belgium.

The president of the National Relief Commission of Brussels asserted on March 25, that before the next harvest, 2,500,000 Belgians will be in the bread-

line. Foodstuffs must be continued to be provided in the fairly regular way in which they have been supplied heretofore. Belgium has been saved from the intermittent periods of starvation by the personal sacrifices of the Directors of the American Commission who have at these times pledged their personal credit for as much as \$10,000,000. All honor to the Commissioners.

We of the medical profession of America must see to it that our Belgian colleagues and their families are saved from such intermittent periods of starvation by keeping the stream of food and supply boxes pouring in to them in a steady flow.

J. RIDDLE GOFFE, M.D.,
New York, N. Y.

BELGIAN SCHOLARSHIP COMMITTEE.

The Belgian Scholarship Committee, of Washington, D. C., has recently issued the following circular letter of appeal in behalf of destitute Belgian scholars, and in anticipation of the future needs of Belgium during its period of educational reconstruction:

"In consequence of the devastation of Belgian museums, libraries and universities, numerous worthy students, research workers and professors, many of them crippled for life, are interrupted in their important work. To the lovers of equity, and to those who cherish education and admire Belgian integrity and heroism, an opportunity is hereby given, to assist in bringing to America, worthy intellectual men and women for a temporary free enjoyment of the privileges of American institutions.

"This committee has already received assurances from the George Washington University for the instruction of ten students in any of the departments of the University. The following is from the minutes of the Board of Trustees: 'On motion it was resolved that the University offer, within the discretion of the president, free tuition to the extent of \$1500.00 to European college students who are unable by reason of present conditions in Europe to pursue their courses at their respective colleges.' It is highly probable that the committee will receive from other American institutions similar assurances.

"It is proposed to raise a fund at once to defray the traveling expenses to and from Belgium, and the cost of residence in Washington for a period of one year, of the students or research workers, which the George Washington University has already generously provided for. In the case of professors it is hoped that the subscriptions will be sufficiently liberal to provide for honorariums as well, thereby giving all the students in Washington the benefits of lectures by Belgian scholars.

"It is estimated that from \$20,000 to \$25,000 will be needed in the work at once, and in the event of a surplus being accumulated, it is proposed to apply this to the recuperation of educational work in Belgium. This committee is a sub-committee of the Central Committee for the Belgium Relief Fund for women and children and other non-combatants, and it is organized with the approval of his Excellency, the Minister from Belgium to the United States.

"Please draw checks payable to Belgian Scholarship Committee, John Joy Edson, Treasurer, Washington Loan and Trust Building, Washington, D. C. Checks for any amount, large or small, are earnestly asked for. Please send something.

"NEVIL MONROE HOPKINS, *Chairman.*"

BELGIAN RED CROSS.

The following letter from Dr. Depage of Brussels, to the American medical profession, has been recently

received. In another column of the JOURNAL is a statement of a meeting to be held in an attempt to carry out the requests which Dr. Depage makes.

BRUSSELS, January 23, 1915.

My dear Colleagues: It is not without emotion that, in this time of trouble, I recall the sympathy with which you welcomed me some months ago.

In free and proud America, at the meeting of our International Congress of Surgery, of which I had the honor of being President, we all felt equally united not only in our scientific work but also in the entertainments which expressed the cordial hospitality and fraternal feeling with which you received us.

We did not dream then of the events which were going to happen, of the complete overthrow of Europe, and of the unmerited misfortune which has stricken down my country. However, our Congress opened with a discussion of surgery in war; and I then expressed this idea (alas, prophetic), that just as the armor-plate of battleships is increased in accordance with the increase of the power of projectiles, so the science of surgery should progress step by step with the increase of the strength of armaments, and should contend by all the means of human creative genius against the demon of destruction.

Present events have proven, only too well, the justice of this point in view. Nevertheless, let me again today affirm to you my opinion, and let me join you in the hope that the peace of tomorrow will bind the United States of Europe and the United States of America in eternal bonds of brotherly love.

In the meantime the situation in which we find ourselves is truly tragic. The Belgian Red Cross finds itself confronted by conditions which are unique in its history. The country, after a heroic defense, has been almost entirely overrun: its cities destroyed, buildings annihilated: installations confiscated by the enemy; its resources wiped out. That is the sad picture it presents. The Belgian population has been compelled to flee the country; our wounded are forced to seek asylum in foreign lands. Others have told you, others will tell you again, of the pitiless character of this war. As for me, as a doctor, I wish during the war to occupy myself with but one thing,—the care of the wounded. My sole preoccupation is to save human lives, and sometimes to save what is more precious than life, when by preventive measures, we can save the wounded from becoming crippled for the rest of their existence.

And so I face the situation in which our Red Cross work finds itself in this war, and I seek for means to assure to our soldiers the care which they expect from us. We have before us a ravaged country which offers no shelter for our hospitals, no implements, no resources of any kind. We are, therefore, face to face with the necessity of reconstructing entirely our hospitals and ambulances and of furnishing them completely with all necessary supplies.

Up to the present, England and France have helped us greatly. For the aid they have given we are profoundly grateful, but their resources are not inexhaustible and our needs are constantly increasing. America, I know, has already given generously to Belgium. Encouraged by your brotherly sympathy, I ask you for still more, and I send you my faithful collaborator, Madame Depage, who accompanied me on my last visit among you. The Managing Committee of the Belgian Red Cross has appointed her for the purpose of organizing, in its name, an American-Belgian Committee which will centralize all contributions and forward them directly and promptly, so that we may continue our work and meet our needs.

We thank the great American nation which, in the saddest hour of our history, has given us such generous help. I appeal specially to you, my dear colleagues, and I ask you to help me in my effort. I know you well enough to feel sure that I shall find in you the most fraternal and devoted assistance. I thank you in advance, and, in the name of the Red

Cross of Belgium, as well as in the name of the whole country, I express to you our profound and sincere gratitude.

A. DEPAGE,

Professor of the Surgical Clinic,
of the Free University of Brussels;
President of the International Congress
of Surgery, New York, 1914.

Director of the Belgian Red Cross with
the Belgian Army.

It is earnestly hoped that the medical profession will respond to this appeal made by our colleague in his time of need.

J. COLLINS WARREN, M.D.

GEORGE H. MONKS, M.D.

S. J. MIXTER, M.D.

NOTICE.

THE CUTTER LECTURE on Preventive Medicine and Hygiene will be given by Victor C. Vaughan, M.D., Dean of the School of Medicine and Surgery, University of Michigan, on the subject, "The Phenomena of Infection," on Wednesday, April 14; Thursday, April 15; and Friday, April 16, at the Harvard Medical School, Amphitheatre, Building E, 5 to 6 p.m.

These lectures are given annually under the terms of a bequest from John Clarence Cutter, whose will provided that the lectures so given should be styled the Cutter Lectures on Preventive Medicine, and that they should be delivered in Boston, and be free to the medical profession and the press.

The members of all classes in the medical school, the medical profession, the press, and others interested are cordially invited to attend.

SOCIETY NOTICES.

NEW ENGLAND PEDIATRIC SOCIETY.—The thirty-eighth meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, April 30, 1915, at 8.15 p.m.

The following papers will be read:

1. "Can the Speech Present a Sign of Congenital Syphilis?" W. B. Swift, M.D., Boston.

2. "Acute Otitis Media in Childhood; Avoidable Mistakes in Diagnosis, Prevention, Treatment." W. R. P. Emerson, M.D., Boston.

3. "Studies in Bronchial Glands." W. W. Howell, M.D., Boston.

4. "Endocarditis in Children: Its Prophylaxis and Treatment in an Out-Patient Department." R. S. Eustis, M.D., Boston.

Light refreshments will be served after the meeting.

E. M. BUCKINGHAM, M.D., *President*.

RICHARD M. SMITH, M.D., *Secretary*.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY.—The annual meeting of the Society will be held at the American House, Boston, on Wednesday, April 21, 1915, at 11 a.m. The annual oration will be delivered at 12 o'clock, noon, by Dr. William C. Hanson, of Belmont. Subject: "Scope of Public Health Service."

Dinner will be served at 1 p.m.

LYMAN S. HAPGOOD, M.D., *Secretary*.

6 Garden St., Cambridge, Mass.

HAMPDEN DISTRICT MEDICAL SOCIETY.—The annual meeting of the Hampden District Medical Society will be held at the Academy of Medicine Building, 349 State St., Springfield, on Tuesday, April 20, 1915, at 4 p.m.

Election of officers.

Papers for the afternoon:

"The Diagnosis of Stomach Conditions from Tube Findings," P. M. Cort, M.D.

"The Diagnosis of Stomach Conditions by the

Roentgen Ray." Illustrated by lantern slides. H. W. Van Allen, M.D.

Discussion.

Luncheon at expense of Society.

HERVEY L. SMITH, M.D., *Secretary*.

APPOINTMENTS.

Dr. John R. Murlin of the Cornell University Medical School, has received a temporary appointment as biochemist at the pellagra hospital of the United States Public Health Service at Spartanburg, S. C.

Dr. Andrew Hunter of the Cornell University Medical School, has been appointed professor of pathological chemistry in the University of Toronto.

Dr. R. Travers Smith has been appointed professor of materia medica, therapeutics and pharmacology in the School of Surgery of the Royal College of Surgeons of Ireland.

RECENT DEATHS.

DR. GEORGE DICKINSON THAYER, a Fellow of The Massachusetts Medical Society, died at his home in Northampton, Mass., March 16, of heart disease, aged 57 years. Dr. Thayer had been county physician for thirty-two years and city physician for nine years. He was a graduate of New York University Medical College in 1881, and joined The Massachusetts Medical Society in 1882.

DR. WILLIAM J. DOUGHERTY, who died on April 6 at Beverly Farms, Mass., was born at Lowell, Mass., in 1882. He studied medicine at Tufts College and at the Johns Hopkins University. He is survived by his widow and by one son.

DR. CHARLES FESSENDEN NICHOLS, who died on April 5 at West Roxbury, Mass., was born in Salem, Mass., on February 20, 1846. He received the degree of M.D. in 1870 from the Harvard Medical School and subsequently practised his profession in this city until his death. He was a member of the Harvard Medical Alumni Association and of the American Institute of Homeopathy. He is survived by his widow, one daughter and two sons.

DR. JAMES COUGHLIN O'DONNELL, who died on March 30, at Northampton, Mass., was born at Florence, Mass., in 1871. He received the degree of A.B. from Holy Cross College in 1892 and subsequently studied medicine at the New York College of Physicians and Surgeons, and later at the Harvard Medical School, from which he received the degree of M.D. in 1899. After serving for a time as house officer at the Boston Children's Hospital and at St. John's Hospital in Lowell, Mass., he settled in the practise of his profession at Haverhill, Mass., subsequently removing to Northampton in 1895. He was unmarried.

DR. MANTON HOLLY, who died of pneumonia on April 7 at Greenwich, Conn., was born in New York City on March 28, 1833. He studied medicine at the Yale Medical School and at the New York College of Physicians and Surgeons, and served throughout the Civil War as surgeon in a military hospital at Washington, D. C.

DR. WILLIAM ORRIS MANN, Superintendent of the Massachusetts Homeopathic Hospital, died in that institution, April 9, aged 45 years, following a surgical operation. He was born in Randolph, Mass., and was a graduate of the Boston University School of Medicine in 1892. He was president of the American Hospital Association and a Fellow of The Massachusetts Medical Society. He is survived by his widow and two daughters.

BOOKS AND PAMPHLETS RECEIVED.

Pyelography, by William F. Braasch, M.D. W. B. Saunders Co. 1915.

The Boston Medical and Surgical Journal

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Address

JOHN HALLE.

ANATOMISTE, CHIRURGIEN, MODERNIST.*

1530—1600.

BY CECIL K. DRINKER, M.D., BOSTON.

It is an easy task to select the great medical figures of the 16th century and to follow them with fair success through their eventful careers of scientific exploration. These giants have their due today and their lives, as expressed by imaginative achievement, are fairly opened to us. But even so, we are woefully lacking in intimate knowledge of the way they worked, and especially of the conditions which surrounded their early training. If this is true of the great, it is obvious that even more difficulty must attend attempts to get at the true status of medical practice at such a time. The ordinary doctors in an extraordinary period; what general practice meant in these dark days; how the country physician fought through his prosaic rounds—these have been my interest, and I shall illustrate them by passages from the life of John Halle, an Elizabethan country doctor practising in Kent in the little village of Maidstone.

This man slightly antedates Harvey, living from 1530-1600. He has left us the first work upon anatomy published in England in the English tongue. Vicary's Anatomy appeared in

* Read before the Historical Club of the Harvard Medical Society, January 5, 1915.

1577, fifteen years after his death, and while there is a tradition that the first edition came out in 1548, no one even knows upon what basis such an idea has risen. Halle's Anatomy is not in the least valuable nor creditable from the point of view of original observation. It appeared in 1565 and is appended to his translation of the *Chirurgia Parva* of Lanfranc. He called it "A compendious worke of Anatomie more utile and profitable, than any heretofore in the Englyshe tongue published." The "worke" is indeed "compendious" as regards the anatomy, there being but ninety-six pages for the whole subject. We may say that the "Anatomie" is of the 14th Century, the work of William of Salicet, Lanfranc and Guy de Chauliac redressed to suit his English readers, and disappointingly barren. But in defence of Halle we may contend with safety that it is quite as good as Vicary's *Profitable Treatise of the Anatomie of Man's Body*. Halle, however, was a provincial surgeon, while Vicary was one of the best known surgeons of his day, being First Master of the Barber Surgeons and attached to the courts of Henry VIII, Edward VI, Mary and Elizabeth.

Fortunately for us, medical authors were not overwhelmed by material in those good days nor trammelled by conventionalities of method, so that our anatomist and surgeon feels at liberty to favor us with his general views upon practice, his ideas upon methods of study, and last and evidently most vital to him, with a fierce arraignment of the quacks who seem to have tormented him incessantly in his quiet country village.



Facsimile: Frontispiece.

There is not a dull moment in this old book, nor one in which the reader does not feel himself the intimate friend of this most worthy, gracious and sometimes pugnacious author. The dedication, "Unto the Worshipful, the Maisters, Wardens and consequently to all the whole company and brotherhood of Chirurgiens of London, John Halle, one of the lest of them, sendeth hartie and lovyng salutation," is followed by an epistle which indicates the chief reason for his work, namely, to spread knowledge which shall put a stop to the activities of false practitioners whose incessant mistakes and mercenary minds are dragging medicine into disrepute.

"And alas," he says, "whereas there is one in 'Englande,' almoste throughout all the realme, that is indede a true minister of this arte, there are tenne abominable abusers of the same,

Whereas there is one Chirurgien, that was an apprentice, to his arte, or one phisicien that hath travayled in the true studie, and exercise of physiqe; There are tenne, that are presumptuous smearers, smaterers, or abusers of the same: Yea, Smythes, Cutlers, Carters, Coblars, Copars, Coriars of lether, Carpenters, and a great rable of women: Which (as the moste excellent Galen feared to happen) forsake their handiecraftes, and for filthy lucre abuse phisick and chirurgerie.*

"Would to God therefore, my dere maisters and brethren, that there might be no fault found in us concerning these things. For truly

* Compare William Clowes (1540—1604) who complains of medical practice by "tinkers, tooth-drawers, peddlers, ostlers, carters, porters, horse-gelders and horse-leeches, idiots, applesquires, broom-men, bawds, witches, conjurers, soothsayers, and sow-gelders, rogues, rat-catchers, runagates, and proctors of spit-the-houses."

if we weare such men of science, as we ought to be, those false abusers would be more fearful to meddle as they doe. For what a shame were it, that such an abuser in talkinge with a chirurgien in ded, shall apere more perfect in the knowledge of the anatomie, and the natures of simples, or the complexion of man his bodie, then he that hath been apprenticed to his arte? Surely me thinketh this were a great occasion, not only to cause these abusers more to presume: but I fear me also that suche things have bene the cause, that suche abusers have bene defended, of those which of right shoulde have subdued them." After a brief note upon the merit of Lanfranc's work and mention of the addition of his own brief anatomy, the worth of which he leaves his brethren to judge, he ends with a tremendous blast against all abusers of medicine.

Following this dedication are letters from two of Halle's surgical friends, William Cunningham and Thomas Gale,* commending his work and his good spirit. These notices are in the same vein of frank extravagance which we see today in the book reviews of many medical journals. One of them, Gale, mentions a curious point of view, but one which in his day was perhaps more practical. John Halle seems to have told his friends of his intention to publish his work in English and of his desire to spread information in this way. Whereupon it was held that in making scientific matters so plain to everyone he would open medical practice to even greater abuse. Halle later refers to the same objection, saying: "I am not ignorant, that some men will thinke, that this booke (beyng

* Thomas Gale (1507-1586?) a surgeon and author of *An Excellent Treatise of Wounds Made by Gunneshot* (London, 1563).

A most excellent and LEARNED VVOORKE OF CHI-

rurgerie, called Chirurgia parua Lanfranci,

Lanfranke of Mylayne his brieve: reduced from dyuers

translations to our vulgar or vsuall fraise,

and now first published in the En-

glish by Iohn Halle

Chirurgien.

Who hath therunto neces-

sarily annexed.

*A Table, as wel of the names of diseases and simples
with their vertues, as also of all other termes of the
arte opened. Very profitable for the better vnder-
standing of the same, or other
like woorkes.*

*And in the ende a compendious woork of Anatomie, more
vtile and profitable, then any here tofoze in the
English tongue published.*

AN HISTORIALLE EXPOSTVLATION

also against the crafty abusers, both of Chy-

rurgerie and Physicke in our tyme: With a

goodly doctrine, and instruction, ne-

cessary to be marked and

followed of all true

Chirurgies.

*All these faithfully gathered, and diligently set
forth, by the sayde Iohn Halle.*

*Imprinted at London in Flete streete, nigh by
unto saint Dunstones church,*

by Thomas Marfhe.

AN. 1565.

publyshed) wyl be an occasion for such men to be the bolder to abuse the same science. But I know and am sure, that they shall not learne in this booke anythyng wherewith to hurte; neither have I publyshed the same for them. And farther if any abuser of chirurgery reade this boke, he shall (I trust) so fynd himself rubbed on the galle, that he shall be moved (if he have any shame) to leave his vice, rather than more to use it."

And now John Halle, having fulfilled all the formalities and attended to his advertising, turns his attention to his "lovyng Readers," to whom he gives "greeting in our eternal Lorde, the author of all knowledge," and sets forth more explicitly the scope of his work. In this, which is the real preface, we are told of the parts of medicine, "Physiologia, Pathologia, and Therapeutica," and how "these III are together (as most necessary partes of one body), so joyntly united, that neither the last can anything profit withoute the first and seconde, nor the first be perfect and utile withoute the seconde, and thyrd, etc. So doubtlesse can the professor of neither part lack any portion of the whole, without so great imperfection as is his lacke." Therapeutics in its turn divides itself into "Dietetice, Pharmaceutice, and Cheirurgie." As time passes these three parts of what should be one profession are becoming three professions and this against the express advice of the ancient authorities. "But," we are told, "let the present tyme be judge therein, howe much hurte the same causeth. For the persones professing either of these partes are so in hate with the other partes, that they thynke it a dishonor to be acquainted one with another. . . the physiciens or professors of the dietetike parte, abhorre chirurgie, as a thyng to vyle for their profession. And they that are chirurgiens, estemyng their profession to bee only one part of physicke, and that for the exterior partes of manne's bodie, regarde not to be learned thynkyng that it is not nedeful to their arte. And likewise the pharmaceutike parte, trustyng to the learnyng of the physicians and chirurgiens, thynke it no boote to be learned themselves. In so much that olde women must gather their herbes, unto whom they trust for the truth of thynges, rather than to their owne knowledge. And the physiciens havynge only learning, truste to the chirurgiens and apothecaries for experience; and yet in the meane season hatynge either or both, if they medle in the dietetike parte; so that betwene trustyng and hatynge one an other, they are all void and destitute of perfection."

Halle is a surgeon and it is with those who attempt surgery that he is most concerned. The properties and conditions of a surgeon are defined very carefully. "A chirurgien," we are told, "should have three dyvers properties in his person. That is to saie, a harte as the harte of a lyon, his eyes like the eyes of an hawke, and his handes as the handes of a woman.

"Seyng also, that those auncient authors had not only this regarde to the forme of the body, but also and as well to the bewtie or ornament of the mynde, and honest conversation of hym that should be admitted to chirurgery, as are these; He ought to be well mannered, of good audacitie and bolde where he may worke surely, and contrarywyse doubtfull and fearfull, in things that be dangerous and desperate. He must be gentyll to his pacients, witty in prognosticoes, apte and resonable to answer and dissolve all doubttes and questions belongyng to his worke. He must also be chaste, sober, meke, and merciful, no extorcionier, but so to accomplishe his rewarde at the handes of the ryche, to mayntaine his science and necessary lyvynge, that he may help the poor for the only sake of God."

Next the young student begins to get direct advice. He is warned against an apprenticeship with a man who wishes a drudge and will keep him for seven years, not daring to teach anything lest his own ignorance become apparent. Gaming and other typical pleasures of medical students, must be avoided, forsaken for knowledge, his one pursuit. "Let thy boke, therefore, I saye, be thy pastyme and game: which (if thou love it as thou oughtest) will so delight thee, that thou shalt thinke no tyme so well bestowed as at it. Yea thou muste desyre it as the childe doeth his mother's pappe; and so will it nourishe thee, that thou shalt worthily growe and increace to a worshypfull fame of cunnyng and learnyng."

And now we come upon the translation of Lanfranc which, however, does not illustrate conditions of practice as well as the last division of the book entitled "An Historiall Expostulation also against the beastly abusers, both of Chyrurgerie and Phisicke in our tyme: with a goodly doctrine, and instruction necessary to be marked and folowed by all true Chirurgiens."

In the "Expostulation" we are fortunate in having an account of some of the quacks who came into Halle's village.

"In the year of our Lord a thousand fyve hundred fyftie and eyght, there came to Maydstone one Thomas Lufkyn, by occupation a Fuller, a bueler of clothe, and had bene brought up (by report of divers honest men) at the fullynge mylles there besyde the towne, nevertheles he had been long absent from that countrie, in which tyme he had by roving abroad become a Physicien, a Chirurgien, an Astronomer, a Palmister, a Physiognomier, a Sothsayer, a Fortunte Devyner, and I cannot tell what. This deceaver was the beastliest beguiler by his socerys that ever I herd of, making Physike the onely colour, to cover all his crafty thefts, and mischief, for he set oppe a byll at his fyrste comynge, to publishe his beyng there, the tenour whereof was in effect as followeth:—

"If anye manne, womane or childe, bee sycke, or would be let bloud, or bee diseased with anye maner of inward or outward grefes, as all maner of agues, or fevers, pleurisies, cholyke,

stone, strangulion, impostumes, fistulas, kanker, goutes, poekes, boneache, and payne of the joynts, which cometh for lacke of bloud lettyng: let them resorte to the synge of the Saracen's hedde, in the easte lane and brynge their waters with them to be sene and they shall have remedie.

.....By me Thomas Luffkin.'.....

"Unto this Divell incarnate resorted all sortes of vayne and indiscrete persons, as it were to a God, to know all secretes paste and to come, specially women, to know how many husbandes and children they shoulde have, and whethere they should burie their husbands then lyving. And to be brefe, there was not so great a secrete, that he would not take upon to declare; unto some he prophecied death within a month who thanks be to God are yet lyving and in healtie. All this he bosted he could do by Astronomie. But when he was talked with of one that had but a yonge and smalle skylle in that arte, he could make no directe answer no more than puppe my dogge.

"Amonge manye that talked with him, one of mine acquaintaunce asked him this question: Sir, quod he, if you be so cunnygne as ye are named or as you would fayne be esteemed to be, Wherefore goe ye, and travaile ye, from place to place: For beinge so cunning, ye cannot lacke wheresoever ye dwell: for people will resort unto you farre and nere: so that you should not neede thus to travaile for your livynge. Unto whom he made thys beastlye answer: I know, quod he, by Astronomie the influence of the starres and thereby perceave, when and howe long any place shall be unto me fortunate; and when I perceave by the starres, that any evell fortune, is like to chance to me in that place: I streighte waye wiselye avoid the danger, and goo to another place where I knowe it will be fortunate and luckye."

After a career which seems to have been immensely annoying to Halle, this "beastlye deceaver" begins to be understood by the people and takes himself off with all the money he can lay his hands upon. He is interesting to us because of his use of a bill of advertisement and because of his mention of the current superstitions. How exactly similar to the tactics of Luffkin were those of the itinerant quacks of the early nineteenth century and indeed, though they are not seen so commonly, of today!

Another example gives evidence that Halle is blessed with a pleasant sense of humor:—

"In the yere of our Lorde, 1556, there resorted unto Maydstone one Robert Haris, professynge and pretendynge an hyghe knowledge in Physike; under cloke whereof he deceaved mervaylouslie with vyle Sorceries. This deceaver could tel (as the folish people reported of hym) by only lokynge in one's faee, al secrete markes and scarres of the bodie, and what they had done, and what had chanced unto them all their lyfe tyme before. Wherewith he had so incensed the fonde and waverynge myndes of

some, that pitye was to here. Amonge whome one woman (whoe for her yeares and profession, ought to have been more discrete) when I reasoned with hir agaynste his doynge; she earnestlie affirmed, that she knewe well that he was then dystant from hir, at the leaste VII myles, and yet she verelye beleved that he knewe what she then sayde.

"Well for settinge a lytell agaynste the madness of this deceaver, I hadde a dagger drawne at me not longe after.

"The wordes that I spake were to his hostess, when I saw him goe by in this wyse. Is this (quod I) the cunnygn sothsayer, that is sayde to lye at your house: Sothsayer, quod she, I knowe no suche thyng of him, therefore ye are to blame so to name him. Why quod I, suche men and suche enformed me that he can tell of thynges loste, and helpe children and cattell bewitched and forspoken, and can tell by lokynge in one's faee, what markes he hath on his bodie, and where, and tell them what they have done, and their fortune to come. Yea and all this he can doe quod she. Why then he is a Sothsayer and a Socerer quod I. Well quod she yf he have so muche cunnyng in his bellye, he is the happyer, and it is the more joy of him. Nay quod I, it were mere folyshness for hym to carye his cunnyng in his bellye: and why quod she. Why quod I, thynke you that men of lerning and knowledge cary their cunnyng in their bellies: Wher els quod she, and why not. Mary quod I, yf he should beare his cunnyng there, he should alwayes waste it when he went to the privye, and so in tyme he should lose all his cunnyng. Thys beyng merylye spoken turned me afterwards not to a little displeasure, even at their hands where I had deserved and loked for friendship as of dutie."

Last of all, and after an exhibition of most commendable restraint, Halle closes with a little more advice to the "younge studentes" in the form of a poem of fifty-six verses. The poetry is alarmingly bad, but expresses a number of interesting ideas and practices which may be given by a selection of verses.

"Harke and drawe nere, ye younge studentes.

Your eares loke ye uncloze:

The worthy art of Chirurgery.

To practise that purpose.

"When thou arte calld at anye time,

A patient to see:

And doste perceave the cure to greate.

And ponderous for thee.

"Gette one or two of experte men.

To helpe thee in that nede:

And make them partakers wyth thee.

In that worke to procede.

"And if it happe to frame amisse,

Suspicyon can be none:

Sythe thou haste soughte all means of healtie.

And wouldste not be alone.

"But one thyng note, when two or more

Together ioyned be.

About the paynfull patient,
See thatt ye doe agree.

"See that no discorde doe arise,
Nor be at no debate:
For that shall sore discomfort hym,
That is in Sycke estate.

"And when alone with your sore man,
One of you is presente:
Defame nor dispraise in no wise,
The same that is absente.

"With one consent uniformlye
Comforte the wounded man:
But unto some good frende of hym,
Expresse all that ye can.

"And let them know the dannger greate,
That like is to succede:
Prognosticatinge wittilye
And in convenient spede.

"Not onlye in Chirurgery,
Thou oughtest to be experte:
But also in Astronomye,
Both preveye and aperte.

"In naturall Philosophie,
Thy studye shoulde be bente:
To know eche herbe, shrubbe, roote and tree,
Must be thy good intende.

"But chiefllye the Anatomye,
Ye oughte to understande:
If ye will cure well anythinge,
That ye doe take in hande.

"For by the same above the rest,
Ye shall greate fame deserve:
The life of man from many streightes,
To save and well preserve.

"Withoute the knowledge of whyche arte,
Thou canste not chose but erre:
In all that thou shalte goe aboute,
Thy knowledge to preferre.

"As if ye cutte or cauterize,
Or use Phlebotomye:
Ye can not but erre in the same,
Withoute Anatomye.

"Endevoure therefore by all meanes
The same to knowe and kunne
For when thou haste it perfectlye
Thine arte is halflye wunne."

Original Articles.

A STUDY OF LEPROSY: WITH ESPECIAL REFERENCE TO THE PULSE AND TEMPERATURE.

BY JAMES A. HONEIJ, M.D., BOSTON,

From Penikese Hospital and the Department of Bacteriology, Harvard University Medical School.

A PRELIMINARY report was made in the BOSTON MEDICAL AND SURGICAL JOURNAL of Febru-

ary 12, 1914. Emphasis was laid on the possible prognostic value of the morning increase in pulse rate. The present detailed clinical study covers a period of twelve months from July 14, 1913, to July 14, 1914. In all, seventeen patients have been under observation for various periods during two years and fourteen patients have been under constant observation for eighteen months. These observations were carried out by the author with the assistance of two nurses and the coöperation of patients.

The study of the temperature and pulse has given definite results and the following points are now presented:—

1. There occurs a definite clinical temperature and pulse curve diagnostic and prognostic of leprosy.

2. There is a frequent and persistent occurrence of a high morning pulse rate—"morning pulse"*—in all cases.

3. A constant high pulse rate is most marked in progressive and advanced cases.

4. A persistent high pulse rate without a corresponding elevation of temperature of prolonged duration is found after "toxic-febrile"† attacks.

5. There is a correlation of temperature and pulse in early cases, in contrast to a gradual increase of pulse rate without similar temperature reactions in progressive and advanced cases.

6. Not uncommonly a low evening temperature is present.

7. A marked irregularity in temperature and pulse exists during complications not associated with leprosy.

8. There are typical "toxic-febrile" temperature and pulse curve reactions.

9. Marked temperature and pulse reactions occur from otherwise insignificant causes, both physical and mental.

These conclusions have been reached from the study of the cases which are given in the following table (page 581).

CASE 1. F. B. Sex, female. Age, 46. Social state, married. Nationality, Italian. Resident in United States, 7 years. Residence at Penikese, 3+ years. Diagnosis of leprosy made 4+ years ago. Type of disease, tubercular. Stage of disease, fairly advanced. Condition of disease, active-progressive. Most common lesions, tubercles and ulcers, marked induration. Dispensary attendance, frequent. Symptoms most marked, local swelling and pain, mental. "Toxic-febrile" attacks. Activities of patient, light housework. Disposition, depressed, irritable. Prognosis bad. Remarks, mental condition important factor. Eyes affected.

* "Morning pulse." This term is used throughout the article to denote a higher pulse-rate in the morning than in the evening.

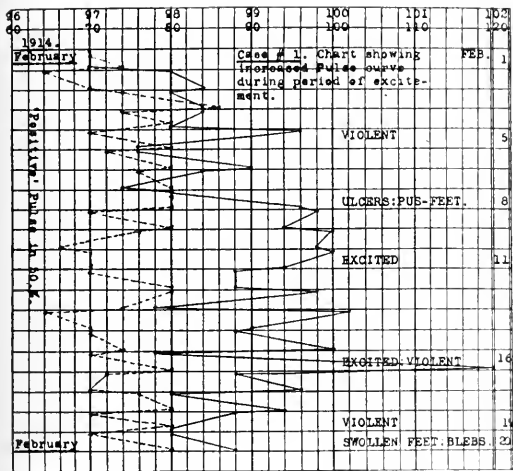
† "Toxic-febrile" (attacks)—a typical reaction characterized by rise of temperature and increase in pulse-rate with symptoms of an infection.

TABLE A.
SHOWING APPROXIMATE DURATION OF DISEASE.

Name.	Sex.	Age.	Nationality.	Symptoms First Noticed.	Isolated in.	Present Stage of Disease.
F. B.	F.	46	Italian	1910	1911	Second. Advanced-prog.
I. B.	F.	33	Portuguese	1905+	1905*	Very advanced.
H. C.	M.	28	Chinese	1907	1912	Latent arrested.
M. C.	M.	25	Portuguese	1911+	1912	Second. Advanced-prog.
L. D.	M.	35	Chinese	1903+	1905*	Second. Advanced.
M. G.	M.	50	Russian Jew	1905+	1907	Second. Advanced.
S. G.	M.	69+	Russian Jew	1908	1909	Second. Slowly prog.
H. K.	M.	27	Russian Jew	1910	1913	First. Progressive
M. M.	F.	52	Portuguese	1905	1909	Latent.
J. N.	M.	30	English	1904	1907	Final; died 1912.
L. P.	F.	35	Lettish	1902	1907	Second. Progressive.
F. P.	M.	47	Portuguese	1897	1905*	Final.
W. Q.	M.	38	Chinese	1910	1913	First. Early.
A. T.	M.	22	English	1905	1909	Second. Advanced-prog.
Y. T.	M.	34	Chinese	1904	1905*	Second. Advanced.
I. U.	M.	38	Japanese	1911	1911	Second. Advanced.

* Original cases of State Colony.
† Well advanced in the year.

CHART No. 1.

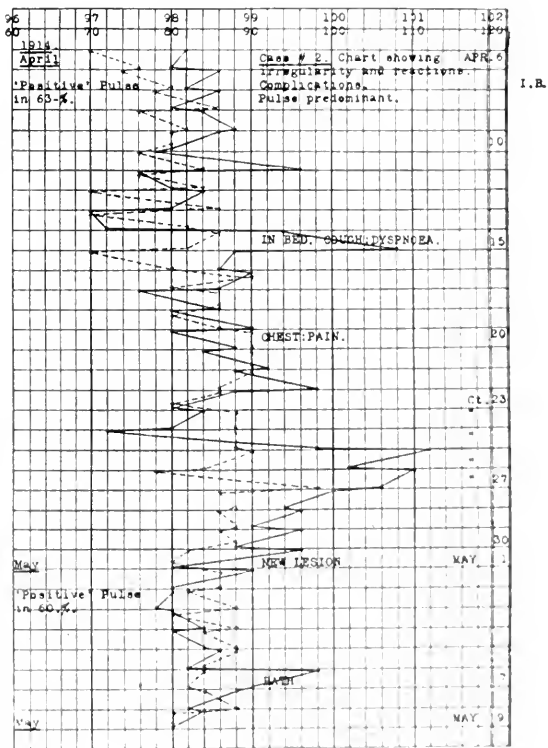


The chart of this patient represents a consecutive period of only six months, and is therefore of less interest and value for study. The patient is mentally unbalanced, highly excitable at times, and as a result is not always under control. The pulse curve gradually predominates during the course of the disease and is irregular, as expected. The morning rise in pulse rate is, however, present approximately 60+ % of the time. This phenomenon is more constantly present during the second four months than in the first period. January shows the characteristic "morning pulse" in 72+ % of the observations. February presents it in only 50%, even during excitement. An interesting point is brought out in this chart. The increased pulse curve during an excitable period shows no relation to the temperature curve. This observation is characteristic of reactions produced by nervous influences, which are not to be confused with the "toxic-febrile" reaction, as seen in the other cases. The disease is rapidly progressing. The lesions have been more frequent and severe during the last few months.

There has been considerable loss of weight during the year.

CASE 2. I. B. Sex, female. Age, 33. Social state, married. Nationality, Portuguese. Resident in United States, 12 years. Resident at Penikese, 8+ years. Diagnosis of leprosy made 8+ years ago. Type of disease, mixed. Stage of disease, advanced. Condition of disease, active-progressive. Most common lesions, ulcers, swollen glands. Dispensary attendance, frequent. Symptoms most marked, local swelling, and pain, cough, dyspnea. Two slight "toxic-febrile" attacks. Activities of patient, light housework, little amusement. Disposition,

CHART No. 2.



tion, depressed. Prognosis, bad. Remarks, pulmonary tuberculosis present.

The whole chart represents two distinct exacerbations during the twelve months. In December the temperature rose to 101° , the pulse rate to 88; in January the temperature reached 103° , pulse 122+. This was due to what may be termed a "toxic-febrile" attack, with localized swelling of the face, neck and glands, accompanied by pain and depression and marked prostration. The average morning pulse rate during January is high, notwithstanding the fact that recovery from the attacks in December and January had just set in. During April, May and June there were complications. The temperature and pulse were higher in this period, as shown in chart, with frequent exacerbations, which occurred particularly after catamenia. The pulse since December has been in excess of the temperature, and this is more marked from January to the present time, giving an indication of the progressive, serious condition of the patient. Slight disturbances in the course of the disease have reacted in a rise of temperature and pulse.

The interesting points in this chart are: 1, the high "morning pulse" rate covering over 70% of the whole period; 2, the exacerbations of the last four months, with greater irregularity of both temperature and pulse and the higher average of both compared with the previous two periods of four months, being $1+^{\circ}$ and 10+ beats higher; and the low evening temperature for the last eight months, which existed nearly one-third of the whole time. Loss of weight has been extreme.

CASE 3. H. C. Sex, male. Age, 28. Social state, married. Nationality, Chinese. Resident in United States, 13 years. Resident at Penikese, $1\frac{1}{2}$ years. Diagnosis of leprosy made 2 years ago. Type of disease, anesthetic. Stage of disease, early. Condition of disease, inactive. Most common lesions, macular areas. Dispensary attendance, none. No symptoms. No "toxic-febrile" attacks. Activities of patient, fishing, washing, playing. Disposition, slight depression. Prognosis, good. Remarks, patient gained in weight. Pigmented areas disappeared. Discharged.

This patient has been discharged as an arrested case. During the six months previous to his discharge the temperature and pulse ran evenly and fairly regularly and correlated. The "morning pulse" was present less than 42% of the time. The only marked rise was a temperature of 103° and pulse 104 in October, lasting four days and due to a common cold. Three days previous to his discharge the pulse was high, but probably due to the excitement of his departure. The patient gained considerably in weight.

CASE 4. M. C. Sex, male. Age, 25. Social state, single. Nationality, Portuguese. Resident in United States, 6 years. Resident at Penikese, 2 years. Diagnosis of leprosy made 2 years ago. Type of disease, tubercular. Stage of disease, fairly

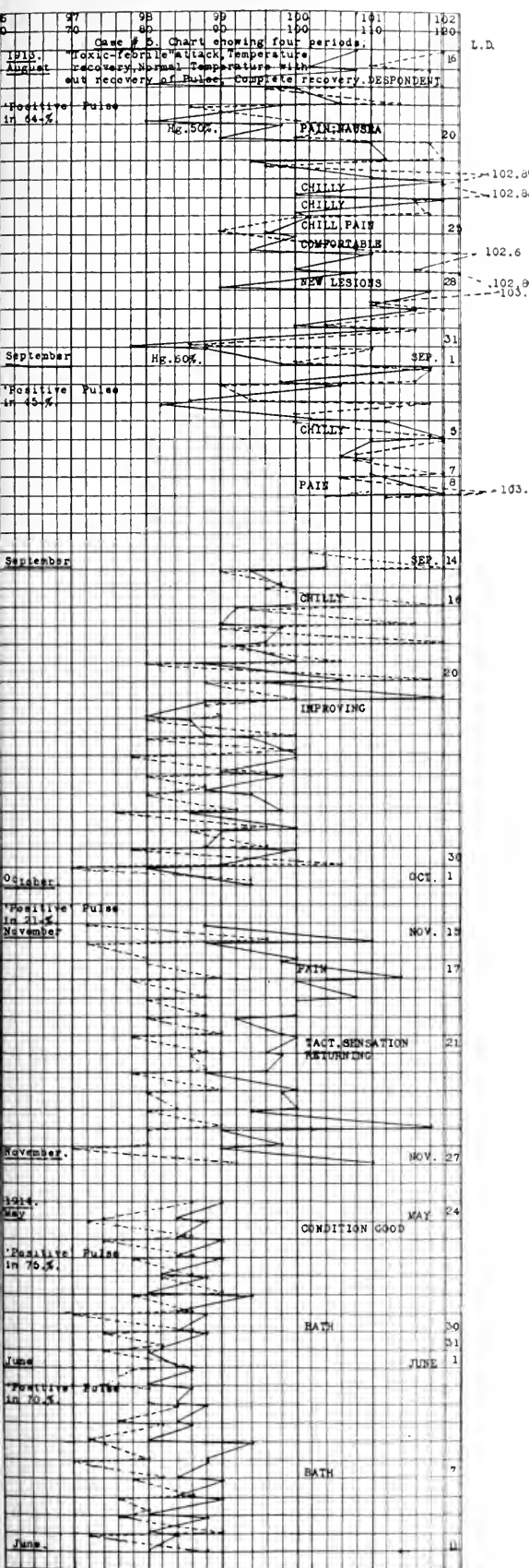
advanced. Condition of disease, active-progressive. Most common lesions, tubercles, ulcers, fissures. Dispensary attendance, frequent. Symptoms most marked, local pain and swelling. One slight "toxic-febrile" attack. Activities of patient, gardening, housework, cooking. Disposition, good. Prognosis, unfavorable. Remarks, questionable pulmonary tuberculosis.

The most striking point is the daily variation in temperature, which shows a marked elevation at night. This is more typical of tuberculosis than of leprosy, although in the former disease both the morning and evening temperature tends to be higher than in the present instance. During the first four months the pulse runs nearly parallel to the temperature. The next month, November, the pulse curve changes and shows a tendency to reverse to the "morning pulse" type. The temperature is higher during the first four months, but during the last four it is more variable. The pulse during the latter period is more rapid—the rate being higher in comparison with the temperature. There are few exacerbations, and only one noticeable elevation which was the result of a "toxic-febrile" attack with local swelling, pain and ulcers. During the first two months the pulse and temperature curves are parallel. The pulse curve gradually merges into the temperature curve, until the rise and fall is not synchronous with the temperature, showing the more consistent appearance of the "morning pulse" rise. The chart shows that during the first four months the pulse presented morning rises in only 24% of the readings and during the last four months in 47+%. During the first four months there were few lesions, but in the last period the lesions, which were consistent with the progress of the disease, were more frequent. No complications were found, although the dispensary attendance was more regular. The patient has lost a little weight.

CASE 5. L. D. Sex, male. Age, 35. Social state, married. Nationality, Chinese. Resident in United States, 12 years. Resident at Penikese, 8+ years. Diagnosis of leprosy made 9 years ago. Type of disease, tubercular. Stage of disease, fairly advanced. Condition of disease, active(?). Most common lesions, pustules, nodules, marked induration. Dispensary attendance, frequent. Symptoms most marked, pain, chills, local swelling. Several marked "toxic-febrile" attacks. Activities of patient, washing, housework, light amusement. Disposition, depressed, hilarious. Prognosis, fairly favorable. Remarks, lower legs have been most severely affected. Greatly improved.

During three-fourths of July, 1913, patient was in fairly normal health. The last one-fourth of the month the patient showed an acute "toxic-febrile" attack, presenting a rather sudden rise of temperature and pulse, accompanied by severe lesions, pain, chills, headache, nausea, extreme prostration and despondency. During August, this attack was at its height and gradually subsided with intermittent exacerbations

CHART No. 5.



or "reinfections" up to May of the following year, when temperature and pulse are nearly correlated as previous to the attack. Six weeks after the onset, the temperature was more regular, but showed high daily variations. The readings were low in morning and high at night until January, when a second serious attack occurred, with high and irregular temperature, extremely low in the morning and excessively high in the evening. From Sept. 21, just after attack, the temperature subsided gradually to 99°, but the pulse remained high and irregular up to the first of January. During this period, with the exception of the second attack, the pulse rate was high and out of proportion to the temperature, hovering around 110 and 120. From Feb. 7, just after second attack, a similar change took place, the temperature subsided much more genuinely, but the pulse remained high and irregular until it gradually merged during May with the temperature, and then ran parallel to it and within fairly normal limits up to the end of the year. During both attacks, the high "morning pulse" was present 65+ % of the time. During the recovery from these attacks, in October and November, the latter was much less evident. This was due to the fact that, although there was subsidence of temperature, the effect of the "toxic-febrile" attack was still present. During the last four months the average was practically 75%. Since this is a typical case, a careful study of the charts is warranted. The patient has gained in weight.

CASE 6. M. G. Sex, male. Age, 50. Social state, married. Nationality, Russian Jew. Resident in United States, 12 years. Resident at Penikese, 7 years. Diagnosis of leprosy made 9 years ago. Type of disease, tubercular (?), mixed. Stage of disease, slowly active. Most common lesions, bullae, ulcers, swollen glands, marked induration. Dispensary attendance, frequent. Symptoms most marked, pain, chills, swelling, throat. One severe and several slight "toxic-febrile" attacks. Activities of patient, light housework, cooking, light gardening. Disposition, nervous, slightly apprehensive. Prognosis, unfavorable. Remarks, throat causes considerable discomfort. Nerve involvement rapid.

This patient had a more or less consistent pulse during the year, although at intervals there was irregularity, most often accompanied by an equally irregular temperature. During the "toxic-febrile" attacks the chart shows the usual "pyramid" effect. For the first four months pulse and temperature were fairly parallel, during the last four months the pulse showed a greater ratio of change than the temperature and its increase was greater in proportion to the rise of temperature. There is nothing remarkable about the chart excepting that the average of the "morning pulse" rises for the year is 72+ %. The temperature did not often exceed 99°, and the pulse was most frequently between 80 and 90. The temperature showed an evening fall more than one-fourth of the whole time and at almost no time a rise of more than 1° above

the morning temperature. The patient does not show any tendency for the worse but rather a slow, gradual improvement, with indications of greater nerve involvement. Patient has held weight.

(To be continued.)

SKELETAL CANCER.

By E. H. RISLEY, M.D., F.A.C.S., BOSTON.

THE subject of skeletal cancer or bone metastases following operations, particularly for breast cancer, assumes a place of importance when we are considering prognosis and the limit of time to be set on what may be called a cure after radical operation.

The discovery of two late recurrences or metastatic growths in patients operated on for breast cancer, the one in the skull seven years after operation, and the second in the vertebral column nine years after radical operation, has led the author to try to set down in as brief and concise a way as possible the essential facts in regard to skeletal metastatic growths.

Such instances as the above make one skeptical in putting one's faith in any time-limit of cure and very guarded in one's own mind in making a prognosis, even after the most thorough and radical operative procedure.

The literature contains no extensive, thorough or detailed paper on this subject, probably because of its comparative rarity and the fact that many cases are discovered only at the autopsy table.

Von Recklinghausen in 1891 made the first careful study of skeletal carcinoma. This was done in the course of studies on cancer of the prostate. He was surprised at the frequency of bone metastases in prostatic malignancy. Since Von Recklinghausen, Handley is the only author who has published anything of distinct value on the subject. He devotes an entire chapter to bone metastases and theories of invasion in his most excellent book on "Breast Cancer and Its Operative Treatment."

Route of Metastatic Spread. There are two distinct theories in regard to the mode of invasion. The older and more common one being that of emboli in the blood stream. The second, that of centrifugal extension via the lymphatic plexus of the fascia. Handley sets this forth so convincingly that reference will be often made to his excellent exposition of the subject in discussing this question.

I think, however, that Handley's theory explains satisfactorily bone metastases from breast cancer only and that it may or may not apply to cancer metastasizing to other organs or from other organs.

Handley's theory, while accounting satisfactorily for bone metastases in the humerus and

femur is hardly convincing when applied to the lung, brain and possibly vertebrae and liver. In these we must give credit to the embolic theory.

His belief, however, asserts that metastases to the liver are via the lymphatic plexus of the abdominal wall down to and by way of the suspensory ligament of the liver to the liver substance itself.

To quote from Handley: "There is one fact with reference to secondary growths of the femur and humerus which seems at first sight strongly to suggest their origin from emboli carried along the blood vessels. Bone deposits in an early stage involve the upper third of the femur, but the lower half of the humerus. They then occur mostly in that district of the bone towards which the nutrient artery of the shaft is directed. More closely examined, this contention loses much of its force. The seat of election for cancer of the femur is the great trochanter; of the humerus it is at the deltoid insertion. One would rather imagine, if the process were embolic, that the seat of election in the femur should be in the neck near the epiphyseal line, and not at a point distinctly lower down. Again in the humerus, when the nutrient artery enters below the mid-point of the bone, the line at which fracture is most often found—the deltoid insertion—lies above the nutrient foramen and not below it, as would be required in the embolic theory.

"If bone deposits are disseminated by the blood stream it seems reasonable to argue that cases in which they occur should show pulmonary metastases with especial frequency. As a matter of fact deposits in the lungs were only present in 4% of 37 cases showing extensive bone deposits, while pulmonary metastases are recorded in 26% of an entire series of 329 cases.

"The weightiest argument against blood infection as a cause of bone deposits lies in the entire escape from metastases of the tibia, fibula, radius, ulna and bones of the hands and feet. These bones are just as liable to embolism as the femur or humerus, probably more so, on account of their greater nearness to the periphery of the circulation, and yet metastases in them are of the rarest occurrence."

Observation has proved that the growth does not spread primarily along the skeleton by continuity and does seem to indicate that the extension is by way of the fascial planes through the delicate network of lymphatics which are known even to accompany blood vessels.

When we consider the process of invasion of the humerus and femur, granted, they are invaded via the lymphatic plexus of the deep fascia, the first attack should be directed on that point at which the bone lies nearest to the deep fascial lymphatics, and therefore on that point at which the bone comes nearest to the cutaneous surface. Moreover, in the case where a bone is provided with two or more subcutaneous areas, the seat of first attack, according to the

view of centrifugal spread, must be that area nearest the trunk. Thus the point of invasion in the femur should be, and in point of fact is, the base of the great trochanter and the adjoining part of the linea aspera. The point of invasion of the humerus should be, and actually is, relatively much lower down, at the deltoid insertion, since the whole of the upper half of the humerus is well clothed with muscles.

Centrifugal extension, therefore, explains in the humerus and femur the peculiar seats of metastases better than embolic infection via the blood stream.

Bones distal to the elbow and knee escape simply because the patient dies, almost invariably, before the growth has spread along the deep fascia far enough to reach them.

Regions Affected. A fact of particular interest is that bone metastases rarely ever occur in areas not commonly invaded by subcutaneous nodules. These occur in all areas of the body proximal to the elbows and knee joints.

In relation to this phase of the subject the following table is of interest:—

	Bone.	No. Cases	Percentage
Bones lying wholly or partly within the area liable to subcutaneous invasion.	Sternum	30	9
	Ribs	28	8
	Clavicle	5	1.5
	Spine	12	3.6
	Cranial bones....	9	2.7
	Scapula*	1	.3
	Femur	14	4.2
	Os inominatum..	0	0
Bones lying below the area liable to subcutaneous nodules.	Humerus	9	2.7
	Radius	0	0
	Ulna	0	0
	Tibia	1†	.3
	Fibula	0	0
	Patella	1†	.3
	Bones of hand... 1	.3	
	Bones of foot....	0	0

From 1872-1901 at the Middlesex Hospital there were 329 autopsies on cases of mammary cancer. Excluding cases where the only bones to which cancer had extended were the sternum and ribs, there were 37 cases in which the bones were the seat of secondary deposits or spontaneous fracture. When the cases of sternum and rib involvement are included, there were 73 cases, or a percentage of bone involvement of 4.5.

In general, autopsy records give reliable information only in regard to frequency of metastases in those bones which are subject to spontaneous fracture, with the exception of the vertebral column. Other bones are rarely examined as a routine. Hence statistics of recurrence may show too low a percentage. For this reason it is probable that the escape of the scapula and pelvic bones is almost certainly apparent only. The absence of records of spontaneous fracture in the distal bones shows that the escape from

cancerous invasion is real and not merely apparent.

Bones Most Commonly Affected. The liability of a bone to cancerous metastases increases with its proximity to the site of primary growth; thus the sternum and ribs are affected in about the same number of cases and more frequently than any of the other bones. The spine, femur, humerus, and cranial bones come next, the clavicle forming an exception to the general rule. Bones distal to the knee and elbow escape invasion except in the rarest instances. Halstead had no cases of involvement below the knee in his large series.

In the femur the deposit is usually present in the upper third of the bone, most often a little below the base of the great trochanter. Thus the point of election for spontaneous fracture in breast cancer does not coincide with the usual position of senile fracture of the femur, which is across the neck, nor with the point of the entry of the nutrient artery. There is strong clinical evidence that the great trochanter is the point of first invasion. Of eight cases showing unilateral fracture of the femur, the fracture was on the same side as the primary growth in six cases, and on the opposite side in only two cases. In 329 autopsied cases there were found 6 in which one or both humeri were the seat of deposits. In five of these cases attention was directed to the bone by the presence of fracture. The deltoid insertion was the site most often involved; the process extending upward and downward from this point by the medullary canal.

The infection may occur months or years after the removal of the primary growth, as instanced in the first part of this paper.

The character of the secondary tumor always corresponds to that of the primary growth. The bone lesion is never primary.

Histo-Pathology. Carcinomatous infiltration of bone causes diffuse lacunar absorption, rendering the bone soft and easily bent or broken. There may also be present at the seat of infiltration a tendency to the development of new bone tissue. This condition has been described as osteopathic carcinosis. The invasion of the marrow, in other words, leads to a low grade osteoporosis, called by Von Recklinghausen "osteomalacia carcinomatosa," which practically never penetrates or extends into soft parts or joints. There is gradual softening and thinning of bone, but rarely an osseous tumor large enough to be detected clinically. Tumors are more often found in the skull than elsewhere. Skeletal deformities other than local changes are rare. Unlike sarcoma, it is not the tumor which first calls attention to the disease. Spontaneous fractures are not as common as might be expected.

The radiographic literature on this subject is meagre. There appears no systematic report on these cases, there being only scattered mention of individual cases.

Pfahler reports a marked absorption of lime salts, that the areas are more sharply defined

* This bone is seldom the seat of spontaneous fracture and is, therefore, overlooked at autopsy.

† This was a rare case in which there was ankylosis of the knee and continuous extension of the process downward from the femur.

than in syphilis, osteomyelitis or tuberculosis, but more irregular in outline than bone cysts. There is no marked periostitis.

Union after fracture has been reported in 2 cases.

The most remarkable feature of multiple metastases is that they have been known to undergo spontaneous involution.

Frequency. Kaufmann finds that bone cancer is most common after cancer of the breast, thyroid and prostate. The occurrence in prostatic cases being about 16%. Cabot believes that the frequency may even be greater than this.

In cases of elderly men with unexplained pain in the back or legs the prostate should be examined for malignancy. Cabot (in a personal interview) mentions several instances of this kind. The bone involvement in malignant disease of the prostate is early and must be reckoned with in estimating the chances of cure, even if the neoplasm is entirely extirpated.

Fischer-Defag found metastases in the spine or femur in 25% of post mortems on cases of cancer of the prostate in the Dresden Hospital.

After breast amputation metastases in the spine are quite common, especially when the disease is the atrophic scirrhus type.

Kaufmann's figures are interesting. In 138 cases he found the lumbar vertebrae involved in 27, the dorsal in 19, femur in 23, ilium 4, ribs 19, sternum 12, and skull in 11. It is not uncommon for more than one bone to be involved, sometimes as many as six or seven.

Leutinger's cases showed 14.5% in the spine, 7.6% in the extremities and 2% in the skull. More modern statistics show as high as 25% in the vertebrae, 20% in the femur and 18% in the ribs. Blumer found 90% of thyroid metastases in women. A peculiarity of this form of the disease being that the thyroid resembled the ordinary goitre without exophthalmus and in no way suggested malignancy. No obvious thyroid enlargement is found in at least 25% of the cases; 38% of thyroid metastases occur in bones of the face and cranium, 10% in the vertebrae, 10% in the femur, 9% in the pelvic bones, 7% in the sternum and 5% in the humerus. Of course all these figures are relative but tend to give, by their practical uniformity, a very good general idea of the relative frequency of these metastases in different regions.

Blumer, analyzing 45 cases, found spontaneous fracture in 24% and spinal symptoms in 13%. Blumer also, contrary to Handley's rule, found as many as 1.4% in the hand and foot. An analysis of his cases reported fails, however, to discover the case histories of any in which such metastases occurred. We know that such metastases are very rare. Paget found no such metastases in 650 cases. Osler reports 1 case of fusiform metastases in the right thumb, followed shortly by involvement of the right clavicle and then the left tibia and ankle. But this was one of the unusual cases of widespread generaliza-

tion mentioned in their report by Brunon and Firbut.

Symptomatology. There may be none. The only characteristic symptom of this disease is pain, generally rather continuous, very severe, generally described and diagnosed as, or mistaken for, myalgia, lumbago, sciatica or rheumatism. Local tenderness over the site of the growth may be present, but is the exception rather than the rule. Spinal paralyses are rare, considering the frequency of involvement of the vertebrae; this is probably so because the disease attacks the bodies first. Skeletal cancer may offer the first evidence of primary neoplasm elsewhere, many cases of cancer of the breast and prostate not being discovered till x-ray shows tumor formation when submitted for diagnosis of a spontaneous fracture. This is well illustrated by one of Wharton's cases. A woman while walking in her room felt her left leg give way under her. Examination showed fracture and tumor of the middle third of the left femur and unsuspected and inoperable cancer of the left breast. Cases of this kind could be multiplied many times.

Wharton cites one case of metastases in the left clavicle 5 months after removal of the left breast. The clavicle was fractured while the patient was turning in bed. A marked tumor developed at the site of fracture before death, which occurred two months later. Also another case in which both femora were fractured while in bed six months after removal of the breast. This patient also later developed a tumor in the right humerus and one in the left parietal bone. Multiple tumors are, however, rare, as the patient more generally succumbs to the ravages of the disease before many metastases have developed. Cabot instances many cases where unexplained pain in the back was cleared up by rectal examination showing malignancy of the prostate. Braekett, seeing many cases of obscure back pain, often finds malignancy primary in the breast or prostate. Bony involvement, where there is tumor formation or acute localizing pain, may be mistaken for aneurysm, especially when it is located in the sternum or cranium. In the latter situation there may be signs of cerebral compression demanding surgical relief.

The relative obscurity of the spinal type demands further analysis. Spontaneous fracture and well marked kyphos may be present. Certain of these cases before fracture have the excruciating pain characteristic of nerve root pressure and are the most distressing of all types. This may later develop into a paraplegia, called by Cruveilhier years ago "para plegia dolorosa." The dorso-lumbar region is the part most commonly affected. The lesion may be high up in the cervical region and a quadruplegia result. There may be herpes zoster at some stage of the process. During the neuralgic stage these unfortunate patients are often treated as neurasthenics. There have been instances in which the onset, instead of being gradual and suggesting

compression of the cord, is very sudden and is like an acute myelitis of degeneration or infectious origin. The most expert neurologists have been led astray by these acute cases. In the chronic cases a visible tumor or spinal deformity is the exception rather than the rule. Osler reports a case of recovery after a complete paraplegia. This is extremely rare.

Summary. A review of the foregoing facts reveals the following facts of importance in regard to metastatic bone cancer:—

1. Metastasis takes place probably by centrifugal spread along the lymphatic plexus of the deep fascia in most cases.
 2. Bone metastases occur almost entirely in the areas of the body subject also to skin nodule metastases, *i.e.* everywhere proximal to the elbow and knee joints. Bones distal to these joints are very rarely involved.
 3. Metastases are more common after cancer of the breast than any other organ. The prostate and thyroid being the next most common. (Hypernephroma of the kidney is not considered in this series.)
 4. The liability of a bone to cancerous invasion increases with its proximity to the site of the primary focus. Thus the sternum and ribs are affected about equally and more frequently than any other bones. The spine, femur, humerus, pelvic and cranial bones come next.
 5. The character of the secondary lesion always corresponds to that of the primary growth.
 6. The frequency after cancer of the prostate may be as high as 25%.
 7. The vertebrae are the favorite seats of attack in scirrhus of the breast.
 8. The percentage of vertebral metastases is nearly 25%.
 9. Spontaneous fracture is present in about 24%.
 10. Pain is the only characteristic symptom.
 11. Visible or palpable tumor is rare, while spontaneous fracture is quite common.
 12. We may set down the following points as diagnostic aids: A fracture of a long bone occurring as a result of trivial injury should immediately suggest the possibility of bone metastases and lead to careful search for the primary new growth. In all cases of painful paraplegia a neoplasm should be suspected.
- A diagnosis of primary bone tumors should never be made without very careful examination of the abdomen, mammary glands, prostate, and thyroid for malignancy. It is rare that careful search will fail to reveal the primary focus.

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CORSETS, PTOSIS, AND SACRO-ILIAC STRAIN.

BY ROBERT M. GREEN, M.D., BOSTON.

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IN the issue of the JOURNAL for Jan. 2, 1913 (Vol. clxviii, p. 12), I published a brief paper¹ on "The Role of Ptosis in Gynecology." Much has been written, both before and since that time, on this most important topic. Of particular value is the recent work of Kellogg² and Williams.³ Yet despite the contributions of many authors, the subject remains in large part neglected or not understood. Unrecognized or untreated ptosis is still the commonest cause of gynecologic failure.

The following observations represent the conclusions of my experience in the gynecologic clinic of the Boston City Hospital, and in private practise. If they seem too strongly stated, it is not because I am engaged in special pleading, but because I have been impressed with the frequency of improper corseting and consequent ptosis in women of all classes, and convinced of the importance to both practitioner and patient of recognizing and correcting this condition whenever it occurs. As vigorous an educational movement is needed among physicians and among the public on the subject of ptosis as on that of uterine carcinoma from neglected cervical laceration. The latter may cause death, but the former may cause lifelong discomfort and disability.

A majority of women, from various causes, suffer from ptosis of one or more of the abdominal viscera. Such ptosis may complicate and aggravate various pelvic diseases, or may simulate them with a variety of symptoms. As most such female abdominal ailments are referred to the pelvis, such cases usually come to the gynecologist, who may err lamentably in his diagnosis and treatment, if he is not alert to detect ptosis in its various forms. Many a patient has been treated in vain for supposed pelvic disease when ptosis was her sole ailment, and many another has failed of the full benefit from effective treatment of her pelvic condition when her coexistent ptosis has been unrecognized and untreated. Hence the subject of ptosis is of vast importance not only to the success of the practitioner but to the welfare of his patients.

Men do not often have ptosis. The principal causes of the preponderating occurrence of

this condition in women, in the order of their increasing importance, are:—

1. Primarily poorer muscular development of the abdominal wall.

2. Childbearing, which stretches the abdominal wall and then leaves it relaxed and unsupported.

3. Improper corseting, which compresses the viscera downward and prevents normal use of the abdominal muscles.

The first two of these causes are to be regarded as predisposing; the last is the determining cause in practically all cases. Savage women rarely or never have ptosis. Essentially ptosis is a costume deformity. Peasant women and others who never wear corsets may have ptosis from fastening heavy skirts tightly around the body above the level of the umbilicus. Doubtless if a generation of girls could be brought up with wholesome physical development and really hygienic costume, ptosis would disappear, except perhaps in multiparae and in the aged. This millennial condition, however, is hardly at present to be expected. Until, therefore, the good sense of women makes genuine costume reform a reality, some sort of corset will be worn by the majority; and since one must be worn, it should at least be proper rather than vicious in type, in order to prevent and relieve, rather than cause and exaggerate, ptosis.

The corset worn by the majority of women is a relic of Victorian barbarism. It laces behind, is applied in the standing posture by hooking from above downward, and, being much too high, encroaches on the lower ribs, impedes the action of the diaphragm, and applies its maximum constriction about the epigastrium. It tends to produce the typical matronly figure that was the ideal of feminine beauty in the age of Jane Austen, crinolines, and the steel-plate engraving lady. It is absolutely and unutterably pernicious.

All corsets may be roughly classified in two groups, those that lace only behind and those that lace in front. The former are all bad. The latter may be good, provided that they have certain other qualifications. The essentials of a good corset are as follows:

1. It should lace in front.
2. Its lower border should come to the level of the trochanters and no lower.
3. Its upper border should not reach high enough to touch the breasts; it may be much lower.
4. It should be of suitable size.
5. It should be as lightly boned as possible.
6. It should be equipped with garter straps.

Moreover, the good corset, to be of any value, must be properly worn. A bad corset intelligently applied is better than a good corset improperly applied. The usual method of putting on a corset in the standing posture, hooking it

from above downwards, is absolutely wrong and productive of the worst possible results. The essential points in the technic of properly putting on a good corset are as follows:—

1. The corset should be loosely applied while patient is lying down with a small pillow under the sacrum and hips, and none under the head. By this means gravity allows the viscera to assume approximately their normal position.

2. The garter straps should next be fastened to the stockings, to prevent the corset from sliding up during and after application. It is best that there should be three straps to each leg, one on the ventral, one on the lateral, and one on the dorsal aspect of each thigh.

3. The corset should now be laced from below upward, the lace being tied in three places, the first very tightly at the level of the linea semicircularis, the second moderately at the level of the umbilicus, the third very loosely at the top of the corset. The lowermost lace should be at the level of the symphysis.

A correct corset, thus applied, supports the viscera from below upward, and does not permit them to sag towards the pelvis, when the patient rises. On the contrary, the figure remains normal, with the flat hypogastrium and the full epigastrium seen in well-developed men. In other words, a good corset, properly applied, does the exact opposite of the bad corset, wrongly applied, which with the assistance of gravity forces the viscera down towards the pelvis and imprisons them there, at the same time constricting the lower ribs and diaphragm so that normal respiration is impossible. The supposed physiologic differentiation of male and female respiratory type, the former diaphragmatic, the latter thoracic, is no true physiologic sex distinction at all but merely represents the habitual corset disability of the woman.

A good corset, properly applied, then, will in most cases correct ptosis and relieve its symptoms. Broadly speaking there are two general types of ptosis:—

1. Enteroptosis (and gastroptosis), seen chiefly in short, plump, rotund women with hollow backs and the hyperfeminine type of figure, and in multiparae.

2. Nephroptosis (much less common), seen chiefly in tall, scrawny women with flat backs and the masculine type of figure.

In both types, the variety of symptoms produced is legion. In enteroptosis, they are chiefly sensations of weight and fullness in the lower abdomen and pelvis, constipation, flatulence, bloating, and other digestive disturbances. The diagnosis is made by inspection and percussion. When associated with any genuine pelvic disease enteroptosis will always exaggerate the symptoms of the latter. It may maintain or be the sole cause of retroversion. This type of ptosis, as occurring in heavier women, is also often associated with sacro-iliac strain, to which they are more

liable on account of their greater proneness to flat-foot. This predisposition to flat-foot is partly due to the greater disproportion of their weight to their musculature, partly to the villainous shoes which most women wear. Like ptosis, the flat-foot, sacro-iliac complex is a postural costume deformity.

When sacro-iliac strain or flat-foot or both are associated with ptosis, there are added the symptoms of backache, muscular lameness in the back and calf, and often pain in the knees. The diagnosis of flat-foot may readily be made by inspection; that of sacro-iliac strain by eliciting tenderness over the joint and by testing the motions of the spine and pelvis for pain and limitation. The treatment is simple. Except in acute stages, the same corset that corrects the ptosis will relieve the sacro-iliac strain by splinting the pelvis. When flat-foot coexists it should be corrected by substituting for the usual narrow-toed boot with high, bevelled heel, a broad-toed shoe, with low, flat heel. It is often advantageous to employ for a time the Thomas sole and heel to throw the weight towards the lateral border of the foot. The patient should also be taught to walk with the toe pointing almost straight forward. Acute cases of flat-foot and sacro-iliac strain are both best treated by rest and strapping. The flat-foot, sacro-iliac, enteroptosis complex is exceedingly common in multiparae, in whom repeated pregnancy has loosened the sacro-iliac joint, and stretched and weakened the entire musculature.

Nephroptosis, as has been stated, is less common, but almost equally important. Its symptoms are chiefly pain in the side, flank, and back, radiating to the groin, often referred to the pelvis. The diagnosis is made by palpating the sensitive kidney, which descends abnormally with respiration. The treatment is to apply the same type of corset as for enteroptosis. Sometimes it is necessary to employ also temporarily a reniform pad applied under the costal border, but more often the corset alone corrects the condition by holding in the epigastrium the intestinal coils upon which the kidney should rest and which normally support it in position. Nephroptosis predisposes to infection of the kidney, and the much greater frequency of pyelitis in women merely represents their frequency of nephroptosis. Hence the importance of early correcting nephroptosis to prevent pyelitis as well as to relieve symptoms.

Ptosis, then, with its protean manifestations, should always be looked for by the gynecologist. It is usually easy to detect and satisfactory to treat. In obscure cases, use should be made of the bismuth meal and enema and x-ray to determine the exact conditions. Unrecognized or untreated ptosis, with its sequels, is probably the commonest cause of feminine disability and gynecologic failure.

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³ Williams: *Ibid.*, clxxii, 1.

Clinical Department.

A CASE OF OSTEOMYELITIS WITH NECROSIS OF THE ENTIRE FEMUR AND SPONTANEOUS FRACTURE TREATED BY A HIGH AMPUTATION, LEAVING A BONELESS YET PRACTICAL STUMP FOR THE ATTACHMENT AND WORKING OF AN ARTIFICIAL LIMB.*

By ALBERT H. TUTTLE, M.D., BOSTON.

Miss Florence P., at the age of sixteen, while skating Jan. 18, 1908, fell on the ice, violently striking her left knee. She continued to skate during three days following the accident, when her "leg gave way" and she could hardly get home. She took to her bed because she could not use her limb.

Her entire leg was swollen, red and glossy. Dr. A. was called and, not knowing there had been an accident, diagnosed the case as rheumatic fever. An abscess formed, pointed and broke, on the inside of the knee at the end of the fifth week, and another three weeks later, higher up. Spicules of bone came away with the discharge of pus.

In November, 1908, she entered a public hospital.

Dr. B. took an x-ray, laid the leg open, and found new bone formation. Dec. 31, Dr. B. opened the leg again and inserted bone grafts. The wound broke down and a second attempt at bone grafting was made in January, 1909. The wound was then treated with *bovine* and healed, leaving four sinuses. These were laid open in March, April and May for curettage and better drainage. A course of opsonic treatment was given during a period of ten weeks, and the patient left the hospital in June, after six months' treatment.

The limb was encased in splints, and she moved about, but only in a wheel chair, during the next five months. She discarded the wheel chair for crutches in December, and the crutches for a cane in January, 1910. The four sinuses continued to discharge pus, and from time to time there was swelling of the knee, the opening of which was repeatedly enlarged for better drainage. During the summer of 1910 she was able to do away with the use of the cane. Labor Day an abscess the size of a hen's egg, and of purple color, formed on the knee, and was opened.

As the case continued without improvement, in October, 1911, the patient consulted Dr. C. He sent her to another public hospital, took an x-ray of the case, and on the thirteenth operated for the removal of dead bone in the shaft of the femur.

She left the hospital in two weeks and Dr. D. took charge of the case at her home. Within three weeks of her return, an abscess formed and broke, discharging a quantity of pus and a steel chisel point, the size of a little finger nail.

The case grew worse, with more pus, increase in pain, and swelling of the knee. Again the patient took to her bed, and in January, 1912, went back to the hospital.

Dr. C. performed a second operation, and put the limb into a plaster cast. Much suffering followed, and in two weeks this cast was removed and a larger

* The history of this case was prepared from a statement of the patient, who was shown at a meeting of the Surgical Section of the Suffolk District Medical Society, February 3, 1915.

one substituted, which enclosed part of the body. In spite of great suffering, she wore this cast for two weeks, when it was removed, and replaced by wooden splints.

About two weeks after the application of the wooden splints, the patient experienced severe cutting pains in the limb, and an examination of the wounds showed the ends of a broken femur projecting through one of the openings.

The desperate condition and sufferings of the patient at this time was manifest in the conduct of her attendants.

Dr. D., an assistant of Dr. C., resigned from the case, saying he was too busy to give her proper attention, and Dr. E., an interne, who took his place with the dressings, after two or three weeks' care, told the patient it pained him so he could not bear to do it any longer. He said the case was getting worse, and that if the pus got into her system there would be no chance for her life. He further advised her to pluck up courage and have the leg amputated.

As a result of the interne's advice, the patient asked Dr. C.—this was Friday—if the leg would have to come off, and he answered, "Certainly not. I am going to save it." The following Monday, however, he said it must come off right away, but his prognosis was so unfavorable that the patient would not consent to the operation. That night her sister, in spite of protests, had the patient removed to a private hospital (Hillside, Dorchester).

The following day, Mar. 26, 1912, I was called in and operated immediately, with the assistance of Dr. Harold V. Andrews. The operation consisted of an amputation through the upper third of the thigh, splitting of the stump and the complete removal of the proximal fragment of the broken femur, which was found to be necrotic throughout its whole length, the bone being easily removed by incising the capsule and severing the ligamentum teres.

The perfect recovery of the patient was due largely to the recuperative powers of her age, and the case is of special interest, as demonstrating the value of a six-inch fleshy, boneless stump for the attachment of an artificial limb. The limb used by the patient is attached to the body by a simple belt strap, and further secured by short stump straps. It is entirely devoid of cumbersome body armor or shoulder straps.

With this artificial limb and a cane, the patient is able to walk quite extensively without assistance.

Medical Progress.

REPORT ON OBSTETRICS.

By ROBERT L. DENORMANDIE, M.D., BOSTON.

AND

By JOHN B. SWIFT, JR., M.D., BOSTON.

REVIEW OF THE LITERATURE ON TWILIGHT SLEEP.

THERE has been so much misconception in regard to scopolamine-morphia anesthesia in obstetrics, or so-called twilight sleep, that it seemed

advisable to go over the authoritative literature on the subject. The following article is a review of the chief important articles which have appeared since 1902, when the first work of scopolamine-morphia anesthesia in obstetrics appeared.

In November, 1902, v. Steinbuechel¹ of Gratz first reported the use of the combination of scopolamine-morphia in obstetrics. He then reported one case as a preliminary report of his further article, which appeared in 1903. In this first report Steinbuechel spoke of the peculiarly antagonistic influences of the two drugs on the human organism and warned us then of the unknown influence on the fetus of even very small doses. He used .0003 gm., or 1/200 gr. of scopolamine hydrobromicum (Merck) and .01 gm. or 1/6 grain of morphia muriate. He waited two hours before he gave the patient the second dose, which was half the original dose. His second article contained the report of twenty cases, in sixteen of which the results were good, three medium and one a failure. There was no disturbance of the third stage of labor. One case developed marked excitement. Seventeen of the children were born alive and in good condition. Three were lost, but in no way could scopolamine be regarded as the cause.

In 1904 Weingarten² of Giesen and Wartapetian³ at Jena reported forty-five and twenty cases, respectively. Reining⁴ followed Wartapetian with thirty-six cases. The results were variable, both as regards the relief of pain for the mother and the condition the baby was born in.

Pusching⁵ reported in 1905, 62 cases, in which he said the method was a "treat to the woman." He used .0005, or 1/120 gr. of scopolamine, combined with the same dose as before of morphia, gr. 1/6. He observed no change in the strength of the pains and no danger to the fetus or that the drugs had any accumulative effect. Up to this time he is the writer who favors most highly this method.

In February, 1906, Gauss⁶ reported three hundred cases from the Freiburg clinic, and in 1907 appeared his results of the first thousand cases. The development of this form of obstetric anesthesia is due entirely to Kronig and Gauss at their Freiburg clinic, and in order to know what their technic is, their published papers are of the greatest aid. Gauss has written in more detail than Kronig.

Gauss says for a method of anesthesia to be useful in obstetrics it must not disturb the pain activity, the abdominal pressure, the placental stage, the lactation or the puerperal involution, and finally, it must not be harmful to the mother or to the child, whose functions must be all right the first few weeks of life.

The technic⁷ is as follows:

When the pains in a primipara are well established and coming every four to five minutes, or in a multipara every five to seven minutes and

last thirty seconds, an injection of .0003 gm. or 1/200 gr. of scopolamine is given and then .01 gm. or 1/6 gr. of morphia. An effect is usually seen in from 15 to 30 minutes. Three-quarters of an hour after this injection the patient's memory is tested by asking some simple pertinent question; if she remembers and answers correctly a second dose of scopolamine is given, but one-half the first dose. Morphia is not repeated. If the memory is lost, the second dose of scopolamine is held off until by further questioning it is seen the memory is returning. In the majority of cases the desired condition of amnesia is reached with two and a half doses. (Throughout this paper we regard the standard dose of scopolamine as .0003 or 1/200 gr.). This condition of amnesia is reached slowly by repeated doses of scopolamine, given at from one to three-hour intervals. A fresh injection is given only when the memory test proves the object shown thirty minutes before to the patient or the question asked has been retained in her memory. Throughout this time the memory test is constantly applied and Gauss warns not to keep asking the same questions over and over again, but to change now and then, and to make use of the various happenings of the labor, such as the rupture of the membranes or vaginal examinations.

As the patient comes under the influence of the drugs she sleeps between the pains, only to rouse and groan or cry out at the height of the pain.

Gauss has no desire to keep patients quiet throughout the labor. He specifically warns not to attempt to narcotize the patient so much that she will not respond to the pains. The phrase he constantly uses is that the patients perceive the pains but do not apperceive them. In other words, they respond to the pain, cry out and move about, but they do not store these impulses up in their brains to make much of at a later period. Upon this memory test, carefully and diligently carried out, Gauss says the entire method stands or falls. Gauss insists that if physicians do not carry out the details of the technic as advised by him then this method of twilight sleep must not be condemned if the results do not correspond to his.

Besides the memory test there are other signs which show the patient is under the influence of the scopolamine, but as they are of no such value as this one fundamental one, we simply allude to them,—the appearance of the Babinsky reflex, the dilatation of the pupil and motor incoördination. In order to have uniformly good results the patient should be guarded from the influence of sensory impressions, such as loud noises and strong light. To do away with such disturbances, Gauss places dark glasses or a towel over the patient's eyes and fills her ears with cotton dipped in oil. Certain of the writers who have had not as good results as Gauss make light of these precautions. Kronig,¹⁰ how-

ever, feels that because Leopold in Dresden and Bunn in Berlin have such large clinics and cannot obtain the quiet that is necessary their results are not good. Nurses and physicians trained to follow the memory test accurately are also most essential for the carrying out of this method.

Up to within a relatively short time it has not been possible to obtain a uniformly good preparation of scopolamine. Whether the reason was that the scopolamine which first was on the market was not true scopolamine or that scopolamine is unstable, we cannot say, but we are inclined to think both reasons were present. The pharmacologists say that scopolamine and hyoscyne are chemically of the same formula, but it is now well established that the action of the two drugs differ. The unstableness of the drug Gauss recognized early, and warned physicians against using it if the solution showed any cloudiness or flocculi on shaking. Because of the instability and the consequent poor results which appeared, Straub after experimentation found that if mannite were added to the scopolamine it remained stable. Siegel, working at Freiburg, has found such a solution to remain stable, at least a year and a half.

Not only has the preparation used been variable, but the effect on any individual patient is always at first unknown, even at the present time, and that is one of the reasons why in inducing amnesia the doses must be small and given slowly. There are certain side effects which not uncommonly follow the giving of scopolamine, and whether one thinks them of much or little importance, depends upon whether he favors the method or not. The reddening of the face certainly is not alarming. The thirst is not infrequently most annoying and to overcome it water is urged on the patient at short intervals. The motor excitement at times is tremendous, necessitating several nurses to hold the patient in restraint. Fortunately, this is not a common side effect but as yet no one can foretell which patient will show it.

The hallucinations, the incoherent mumblings, do occur, but Kronig¹¹ states that "these are of no material importance, so long as the relations of the mother do not remain in the room, for these states of excitability make an unpleasant impression on the family. In consequence of this, we only carry on the method of 'twilight sleep' in cases where the relations promise to be out of the room during the whole time of the birth."

When Gauss reported his first three hundred cases he said that he had used this twilight sleep in 62% of all the cases that came to the clinic, and some time later Bernti,¹² reporting further cases from the Freiburg clinic, said it had been used in but 64.58% of all the cases entering the clinic. We have not found other figures of the frequency that this method may be used. Freeland and Solomons¹³ at the Ro-

tunda Hospital began their investigations in the fall of 1908 and yet it was not until the fall of 1910 that they could report on 100 cases. All the other writers give the number of cases but in no instance do they state the percentage on which it was possible to carry out this technic.

Gauss claimed that the course of labor by this technic is in no way interfered with, that the operative frequency is not increased and that the third stage is in no way altered from the normal.

Shortly after Gauss reported his first series of cases, other obstetricians took up the method and Hocheisen¹⁴ was among the first to report cases and he was not in favor of its use. He found more than 70% of his patients showed some of the unpleasant side effects such as vomiting, marked headache and dizziness, excessive thirst, restlessness, delirium and hallucinations. He notes that the women did not remember any of these effects but the lay persons seeing it were much upset for they expect a quiet physiological sleep. He claimed the birth was lengthened in 50 cases, 5 times atonic post-partum bleeding and 15 times marked retardation of the involution of the uterus occurred. Eighteen per cent. of the babies were born in a state of oligopnea and 15% in asphyxia. One child died during birth and three shortly after birth, yet he admitted that scopolamine could not be blamed for these deaths. He advises the conscientious physician to keep his hands off twilight sleep until favorable effects have been assured.

This article of Hocheisen was very soon answered by Gauss⁸ with an analysis of his first 1000 cases. In the course of this paper Gauss showed that Hocheisen had failed to use the memory test and had used a solution of scopolamine which had broken down as shown by a fine deposit with a milky appearance when shaken. He used this same preparation on ten patients and obtained poor results. Hocheisen's paper, coming as it did from Bumm's clinic, made a strong opposition to the quick taking up of this method. In this series of 1000 cases there was no maternal death due in any way to scopolamine. There was no increase in the percentage of post partum bleeding. In 363 cases the amount of blood lost was measured and the average was 277.7 grams which, according to von Winekel's table is well within the physiological loss.

The third stage was completed spontaneously or by a very slight pressure on the belly in 51% of the cases, while pressure or slight Cr  d   accounted for 48.1%, manual extraction .4%, and manual extraction after a Caesarean section .5%.

The maternal morbidity is no different with this method than with any other. It was claimed that inasmuch as the drug was excreted by the kidneys, damage would be done the kidneys, but careful examinations by Gauss of the urine of 100 women showed this to be untrue.

From a careful analysis of the length of labor in these 1000 cases there is a slight lengthening of the labor. Kronig says the average length of labor has been increased but half an hour. The opponents, on the contrary, find there is a decided lengthening of labor due chiefly to the prolongation of the second stage. This prolongation of the second stage, the opponents say, is because the women are unable or will not bear down in order to expel the baby. Gauss says that when a patient will not bear down the proper technic has not been followed; that the belly pressure is done away with because too deep narcosis has been obtained through lack of observing the memory test. He argues that if the condition of amnesia only is present, the patients bear down better because the pain is not appereceived. Writers report several cases where twilight sleep has been maintained 40-50 hours with no apparent detriment to the mother or child, and as much as .00675 gms. (roughly 1/10 grain) of scopolamine has been given.

In the first 500 births the operative frequency was 9.68%, while in the second it dropped to 4.95%. In Fehling's clinic the operative frequency without seopolamine was 5.29%. In 163 private cases Gauss stated that "relief forceps were not used once, because," he says, "we are independent of the crying and praying of the mother because we know the patients are in amnesia because of correct twilight."

We must all admit that this is a very low operative frequency when compared with our own percentages. We realize that Bokelmann's statement that 40% of his cases showed operative deliveries, 20.8% of which the only indication was the relief of pain, is much nearer our own results than are those of Gauss.

This difference in operation frequency has been made much of by Gauss and some of the lay writers. Its importance lies only in the fact that an appeal is made to the woman's temperament. If sepsis and morbidity, fetal or maternal, follow operative deliveries, then of course Gauss' claim that the operative mortality is lowered is an excellent point in favor of scopolamine and morphia anesthesia. But we feel that the operative morbidity should be no different in simple low forceps work than in normal delivery, and the time saved to the mother is a very appreciative point. If we assume that the operator will have bad results with high maternal and fetal morbidity, then Gauss' claim for a low operative mortality is important. That presupposes poor obstetricians, poorly trained men, and in that class of cases there is no question but that the fewer operations that are done the better for the patient.

Gauss has given no figures on the frequency of perineal tears, but the impression one gets from reading the articles is that the tears are of less frequency and of less severity because of the complete and slow dilatation of the birth

canal. Beruti, however, in 600 cases had perineal tears 88 times or nearly 15%.

Lactation period shows no harmful effects according to Kronig, Gauss or Beruti. Though all the writers are practically agreed that scopolamine is not dangerous to the mother, the result to the child is not so favorable. In about 25% of all births with scopolamine the babies show a definite alteration from the normal breathing. That is, they present a picture of either oligopnea or asphyxia, the former appearing in from 15 to 20% of cases, and the latter in 5 to 10%. The other 75% of the babies are born in a normal condition and their breathing causes no apprehension. Gauss described the condition of oligopnea as the result of the drugs used, but in no way is it to be regarded as alarming. The babies breathe and cry at birth, only to relapse into motionless slumber. The heart action at first is strong, and as the breathing grows shorter the heart beat drops even to 60. As the breathing again begins, due to the stimulation of the centre of respiration by the accumulated CO_2 , the heart beats become more rapid. This cycle repeats itself, the breathing becomes steadily better, the intervals of non-breathing steadily less. When Gauss first saw this condition he made attempts to resuscitate the baby at once. Gradually he left the babies alone more and more. Several children were left absolutely alone while in this oligopneic state and the breathing was slowly but steadily established so that now Gauss puts such babies aside, feeling confident they will in twenty minutes to half an hour begin to breathe normally. In the further condition of asphyxia, apnoea, he uses skin irritation and heart massage to stimulate the child's respiration. In this condition the child is at first more cyanotic than in the oligopneic condition and later it becomes pallid. That this condition is serious cannot be denied, but it fortunately comes with careful dosage but very seldom. Gauss feels that it is the effect of the morphia on the child, and not the scopolamine, and with careful individualization of each case, the condition will not arise. Gauss at first had a percentage of 13% apnoeic children while Beruti later in 600 cases reduced this condition to 5.14%.

Beruti's analysis of 600 cases in Gauss' clinic is most favorable and we quote some of the figures.

Of 609 cases, 9 sets of twins, 602 children or 98.85% were born alive, 7 stillborn or 1.14%, and of these seven deaths, the only ones which could be laid to the twilight sleep method were two. Here it was found that aspiration of amniotic fluid had occurred. But this happens when twilight sleep has not been used. Those in favor of the Freiburg technic claim this depressed condition of the child's centre of respiration makes only for the good of the child, as it prevents, to a great extent, all premature inspiratory efforts.

That this condition of oligopnea is not very

dangerous to the child must be admitted when one realizes how many thousand cases have now been delivered under this method, surely with no higher mortality than without it. It is difficult really to determine the true percentage of deaths that may be laid to scopolamine. There are so many causes which may influence the ultimate real cause of the death, that the relation scopolamine bears to the death is oftentimes minimized or exaggerated, depending upon whether the writer favors or is hostile to the Freiburg technique.

What are we to expect from this technic? Can we confidently tell each and every patient that now she may have her baby without the slightest pains?

From reading Gauss' articles it is clear that the stopping of pain is not his goal or claim. The patient, if the technic is properly carried out, cries out with the pains and shows in every way she suffers. But the action of the scopolamine blots the memory of this suffering from her higher brain centers. In what percentage of cases does this ideal amnesia occur? In Gauss' first 1000 cases it occurred in 76%, while in the next 600 cases reported by Beruti, it was accomplished in only 65%. Kronig now states that this complete amnesia is obtained in 80% of the cases. Some relief was accomplished in 8.2% by Gauss and in 21% by Beruti, and in 5.6% by Gauss and in 13.6% by Beruti there was no result obtained. In other words, even at Freiburg they can use this method in but 62 to 64% of all their cases and in from 5.6% to 13.6% of these cases the drug is without results.

It is agreed that scopolamine should not be given in cases where there is a primary uterine inertia present. Gauss further avoids its use in anemias, where there is disturbance of the consciousness, high grade pelvic contractions, illness with fever, and when communication with the patient, such as deafness or inability to understand the language spoken is present. Also twilight sleep is ruled out where the labor is rapid and the termination is probable within one or two hours. Gauss and others have used this method with excellent results in cardiac conditions and in a few cases it has been tried in eclampsia but no definite conclusions have been arrived at for complication.

It is not to be expected that this method would be accepted wholeheartedly by all in the medical profession or that they would have equally good results in the cases they used the method in as did Gauss. Variable results have followed its trial by other physicians but the surprising thing in practically all the series of cases by other physicians who condemn the method is that they have strayed far from Gauss' exacting technic. One has repeated the morphia until narcosis is complete, another has ignored the memory test, others have changed the doses given without sufficient reasons.

Gauss has not changed the technic practically any recently. Beruti, in the Freiburg clinic,

tried various preparations and also the giving of veronal in combination with the usual technic.

After Straub succeeded in obtaining a uniform and stable preparation of scopolamine, Siegel, realizing that the use of the memory test intelligently was the stumbling block to the success of the method, attempted to standardize the dose—to bring it to a rule of thumb.

Siegel's¹⁵ scheme is as follows: the first dose consists of .00045 gm. of scopolamine and .03 gm. (gr. $\frac{1}{2}$) of narcophin. Forty-five minutes later scopolamine .00045 gm. is given and forty-five minutes after the second dose the third is given and this consists of .00015 gm. of scopolamine and .015 gm. of narcophin. The fourth dose of .00015 gm. of scopolamine comes one and a half hours after the third. Scopolamine is then given every one and a half hours following and at every third dose narcophin .015 gm. is given in addition to the scopolamine.

The narcophin¹⁶ referred to is a preparation made by Bohringer and Sons of Germany, consisting of a narcotin-morphine-meconate which is said to have a less marked effect on the centre of respiration of the fetus than morphia does. At the present time the majority of physicians are trying it out. When it is used it is repeated not infrequently once or twice in half the original dose—in distinction to morphia, for this is practically never repeated by Gauss.

Siegel has reported 220 cases treated under this standardization, with good results. He further altered Gauss' original technic by giving as the head was crowning, inhalations of ethyl chloride, for he found that without it complete amnesia at the most painful moment of birth was not obtained.

Of these 220 cases, 196 were spontaneous deliveries, 18 forceps, 2 breech extractions, 3 versions and 1 vaginal section, in all 24 operative cases. Eleven of these operative cases were done under inhalation narcosis, 12 under ethyl chloride and one without any additional narcosis. Eighty-eight per cent. of the cases under this form of twilight sleep had complete amnesia, 10% partial amnesia, in 2% of the cases there was no effect. In thirty-two cases an oxytocic was given to complete labor.

Gauss has not written approving this standardization of the dose. Kronig does not seem to be over-enthusiastic about it, for he says "We attempted to bring about a standardization of the dosage of this 'twilight sleep' and in the cases of women of average strength and good health the desired degree of narcosis resulted."

The reason ethyl chloride is used at the expulsion of the head is that unless the exact degree of amnesia that is correct is present, the patient has the sensation of pain. From these few sensations which Gauss has called "memory islands" the patient builds up a story of her entire labor and therefore from her point of view the entire labor has been painful and the method a failure. Rather than run the risk of these "memory isles" appearing, the ethyl chloride

or, in other instances, ether or chloroform is used.

Outside of the Freiburg clinic, this method has never taken strong hold of the medical profession. In France it has been used relatively little. In England, Croom¹⁷ reported its use in 62 cases. His results were that in the majority of cases the labor was practically painless and that with ordinary precautions the method is safe. He did not carry out the Freiburg technic. He first used 1/400 gr. scopolamine with $\frac{1}{8}$ of morphia, then increased the scopolamine to 1/100 gr. He waited until the patient was in the second stage of labor in the majority of cases. In this series no children were lost and the mother showed no untoward effects except, possibly, a tendency to post-partum hemorrhage.

Freeland and Solomans¹³ reported a series of 100 cases. Ten of these cases showed complete amnesia; in 57 there was a marked effect in the diminution of pain, in 20 the effect was fair but in 12 there was no effect. They gave the drugs hypodermically and by mouth and came to the conclusion that the hypodermic use is only preferable when the patient shows a tendency to vomit.

In their series two children born were dead following a forceps delivery after a delay in the second stage, and Freeland and Solomons say that when this occurs the cause is an error in technic and not due to scopolamine.

Freeland and Solomans do not feel that a physician must constantly be present after scopolamine has been given. They do, however, warn us that the nurse should be instructed to keep a watch on the perineum, and if the patient be asleep she should be kept on her side to prevent the possibility of the tongue falling back. In their series there were 59 lacerated perineums and forceps was done 19 times and two post-partum hemorrhages occurred.

Giuseppi¹⁸ reported the use of scopolamine in 37 cases, 26 primiparae and 11 multiparae. He used 1/100 gr. hyoseine hydrobromide and morphia gr. $\frac{1}{4}$. When the dose was repeated the morphia was omitted. The English regard hyoseine and scopolamine as identical drugs, therefore, this explains Giuseppi's use of hyoseine. Giuseppi's results were practically the same as those of other observers, though the number of cases is too few to come to any marked conclusions. At the end of his paper is a table giving in detail the results of his observations, which are very interesting.

In this review, we have not included the articles which appeared following Gauss' first articles in 1907 in this country. The results were so variable, the technic followed so different from that at Freiburg, that for our present purpose they are of no use.

Last fall articles on scopolamine-morphia anesthesia began appearing in the medical journals as the direct result of the account of the Freiburg method of twilight sleep that appeared in *McClure's Magazine*. Among the first to pub-

lish their results were Harrar and McPherson¹⁹ from the New York Lying-in Clinic. They reported on 100 cases and obtained complete amnesia in 66 cases. The successful cases were those in which the treatment was begun from three to seven hours before labor terminated. These writers did not find any increased tendency to post-partum hemorrhage, but on the contrary, thought there was less bleeding. Two babies in this series were stillborn, and one child of an eclamptic mother died, but the writers said the stillbirths were due to faulty mechanism of labor and not to the administration of the scopolamine. They do not feel that there is any prolongation of labor. The first stage showed a more rapid dilatation of the cervix followed by a delay in the advance of the presenting part in the second stage. This constant delay in the second stage resulted in an increase in the number of forceps deliveries until they began the use of pituitrin. Harrar and McPherson came to the conclusion that the method was a practical procedure, that it will abolish the "ordeal of labor" in 60-70% of the cases. The disadvantage of the method is the constant observation that is necessary and the inability to use it in private work, unless the finances of the patient permit a sufficient working staff to be present constantly.

Knipe²⁰ first reported on 41 cases, later²¹ increased this number to 101. In this latter report he obtained complete amnesia in 78, partial in 12, analgesia in 2, failure in 9 cases. In the latter cases 5, however, had but one injection of scopolamine. There was no maternal mortality due to scopolamine. There were two stillbirths, one due to failure to resuscitate a baby properly, and Knipe thinks this should have been avoided; the second a prolonged labor with a large child in a moderately contracted pelvis. Eighty-nine of the babies cried at once, 8 showed oligopnea and 2 asphyxia.

Knipe noted no difference in the third stage except in one case there was a moderate post-partum hemorrhage. Only 7 forceps were done, and from this Knipe argues that the necessity therefore for interference is not marked. He suggests that scopolamine be used guardedly in the second stage, and adds that by the judicious use of chloroform or ether amnesia may be continued.

Rongy²² reports 220 cases, and to carry out the Freiburg technic he had the assistance of a recent assistant from that clinic. In 183 cases complete amnesia with anesthesia was obtained. Seventeen cases showed anesthesia without amnesia and in 21 cases the desired effect was not obtained; 186 of the babies cried spontaneously, while 34 showed varying degrees of oligopnea. Rongy does not think the oligopnea is dangerous. Total infant mortality was 6, yet in only one case, where an overdose of narcophin was given, could the method be blamed. Twenty-three cases were terminated artificially. Rongy finds no contraindications, with the possible ex-

ception of kidney complications. He feels that the procedure is especially efficacious when cardiac lesions are present. One case developed a post-partum psychosis, who had had scopolamine, and in the same week two other psychoses appeared, yet neither of these patients had been given scopolamine.

Rongy remarked that the tendency towards engorgement of the breasts was noticeably diminished in this series. In ten patients a severe headache during the entire puerperium occurred, which yielded to medication scarcely at all, and in a number of cases the patients noticed temporarily a lack of power of concentration.

Brodhead^{23, 24} obtained good results in 35 cases out of 46, and in 3 cases he had failures. He had no maternal complications. Thirty-one of the babies cried at birth, and in the others some manipulation was necessary to make the babies breathe. He reports two cases where he thought the deaths of the babies were due to scopolamine. Brodhead says it cannot be denied that in properly selected cases, under competent supervision, this method will be proved to be safe and of inestimable benefit, but of comparatively limited use.

Humstone²⁵ reports 20 cases and Polak²⁶ 51 cases. The former obtained complete amnesia five times and partial amnesia the same. In 16 cases he obtained complete analgesia and partial in four. The babies showed slight asphyxia three times, and in one case it was marked. In the remainder of the cases the babies breathed spontaneously. He does not regard it as a panacea for painful childbirth.

The latter had no failures and in no case was there any recollection of the labor. Asphyxia was present but once and cyanosis in only two cases. Polak speaks of the minimizing of perineal lacerations because of the slow gradual expulsion. In Polak's series there were two low forceps operation. He is impressed with the wide field of usefulness that this method has, but feels that the general practitioner will hardly use it as a routine in his obstetric practice. In a symposium, "Has the Dämmer Schlaf a Place in Obstetrics?"²⁷ De Lee, Applegate, Zinke, and Hirst and Bovée all feel the method is very limited in its use, while Polak and Knipe favor its use. Schlossing, who was an assistant at Freiburg, naturally favors it and feels that the method will obliterate the fear of childbirth and have an important bearing upon race suicide.

Beach²⁸ and Hellman²⁹ favor the method, while Bandler³⁰ says that for a new method to be a permanent adjunct to obstetric procedure it must do something which is truly valuable and that, without the addition of any risks, and he adds that he is yet to be convinced that this method does this.

Such, then, is the situation of twilight sleep today from an unbiased, disinterested point of view. It has, as we have all known, a place in obstetrics. It is not the panacea that the lay

writers would have everyone believe, and neither are the physicians who do not believe in it backward, hardened individuals. All agree that the condition of amnesia is not easy to obtain, all admit that there is a definite percentage where failures occur. In only two writers have we found it stated in what proportion of *all* cases that enter a clinic is it possible to use it. These two writers, Gauss and Beruti, say they have used it in but 62% to 65% of all cases. The lay writers speak of success in 70% to 90% of the cases, carefully avoiding the statement that the method is available in but approximately 65% of all cases. Many of the lay writers speak enthusiastically of the early getting up after twilight sleep deliveries. This does not belong to the twilight sleep technic, but is a German procedure which has not been accepted by the profession at large.

The rank commercialism, which in many instances has gone hand in hand with the articles on twilight sleep, has done much harm to its acceptance. The showing of babies a few hours old, born during "twilight sleep," the printing of pictures of children some years old and their mothers, adds nothing to the effectiveness of this method. To the most intelligent such means of advertising is repellant and can in the long run be of no use. The American public have taken hold of this method, stirred on by an excellent lay writers' campaign which undoubtedly amply pays these authors.

In New York a Twilight Sleep Association has been formed, its aim being "To promote all safe and efficacious means of securing painless childbirth." In the little folder the association puts out we are given to understand that "twilight sleep" "is actually instantaneous forgetfulness of pain." It states that "the dose required for twilight sleep is smaller than for any other form of anesthesia, and the usual dangers of anesthetics are reduced to a minimum."

The authors of this folder do not enlighten the laity why the dose used is so small! Further along in the folder comes the statement that the "Freiburg Women's Hospital has the lowest mortality of mother and child of any lying-in hospital in Europe or America," and from this statement one is led to conclude that because twilight sleep is used here then twilight sleep must be the best method to use in obstetric work.

Is a low mortality necessarily a great desideratum in a lying-in hospital? We do not wish to be misunderstood in regard to this point. If a lying-in hospital is to fulfil its highest function completely it will have sent to its doors many desperate cases, and in these cases the mortality may be high, and yet the good the hospital does may far surpass the work of a hospital which has a very low mortality rate, which is proof that it has a large series of practically normal cases.

Hospitals are being opened for the sole use of carrying on this method. Department stores are

having lectures on the subject. The medical profession must investigate and come to a definite scientific answer to this wave of hysteria which is running over the country. That very soon the proper value of this technic will be established, is certain. The standing of the physicians throughout the country who are honestly trying out the rigid technic will bring about within a short time a true disinterested statement of the value of twilight sleep.

THE TOTAL NON-PROTEIN NITROGEN OF THE BLOOD IN THE TOXEMIAS OF PREGNANCY.

Farr and Williams³¹ have estimated the total non-protein nitrogen of the blood in forty cases of pregnancy. The cases are divided into four groups. Group A is composed of twelve cases of normal pregnancy or puerperium. In these the total non-protein nitrogen expressed in milligrams per 100 c.c. of whole blood, ranged from twenty to thirty, and the ammonia urea fraction from six to ten mg. Group B, eleven cases of pregnancy with renal symptoms (pre-eclamptic or kidneys of pregnancy). In this series the total non-protein nitrogen ranged from 29 to 52 mg. per 100 c.c. of whole blood and the ammonia urea fraction from 7 to 30 mg. Group C, 13 cases of eclampsia. In this group the total non-protein nitrogen varied from 25 to 72 mg. per 100 c.c. of whole blood, and the ammonia urea fraction varied from 11 to 50 mg. Group D, 4 cases, 1 of chorea, 1 with hemorrhagic retinitis, high blood pressure and headache, but with normal urine, and 2 cases of pernicious vomiting of pregnancy. In the latter two the total non-protein nitrogen and the ammonia urea fraction appeared practically normal and are for this reason worthy of note when compared to the derangement of the nitrogen seen in this condition. These investigators also estimated the elimination of phenolsulphonephthalein and found the results at variance with the rest of the clinical picture. They conclude that in pregnant women who have renal changes associated or not with toxic manifestations, there is usually a slight, and in most cases a definite increase in the total non-protein nitrogen, but the increase bears no relation to the severity of the symptoms. The amount of phenolsulphonephthalein eliminated varies so much with the clinical picture that the use of this test does not appear to be of much value either as a diagnostic or a prognostic aid in the toxemias of pregnancy.

THE PHYSIOLOGY AND PHARMACOLOGY OF THE EXCISED HUMAN UTERUS.

Lieb,³² whose work on the isolated uterus of guinea-pigs was reviewed in these columns a year ago, has further investigated the physiology and pharmacology of the human uterus and tubes, owing to the criticism that the guinea-pig uterus should not be compared with the human uterus. In reviewing the literature on the sub-

ject he mentions the work of Henricus, who first reported graphically the contractions of the non-pregnant human uterus. His tracings show three distinct types of waves: (1) small oscillations synchronous with the heart beat, (2) large excursions caused by the ascent and descent of the uterus during respiration, (3) large flat waves due to the contractions of the uterus itself. Later Kehrer has described three types of uterine contractions: (1) pendulous movements corresponding to those of the intestine, which he believes are present in the tubes and ligaments as well as in the body of the uterus, (2) tonus waves or variations in tonus, (3) contractions—(a) true peristalsis, (b) anti-peristalsis, (c) simultaneous and rhythmic contractions of the whole uterus, (d) strictures (a localized tetanus which occurs only at the tubo-uterine junction and at the internal os), (e) tetanus (a continuous contraction of the whole uterus). The last two types are pathological. All the movements described by Kehrer were powerful, sluggish, long-continued contractions alternating with strikingly long pauses.

Lieb, obtaining his material directly from the operating room, placed segments cut from them immediately into a large jar containing 500 c.c. of oxygenated Ringer's solution. If the specimen was to be studied immediately, the temperature of the solution was maintained at 38° C. If the tissues were to be reserved for later experiments they were kept at from 5 to 10° C. Lieb obtained well marked spontaneous contractions 105 hours after operation with tissues that had been kept in well oxygenated Ringer's solution and supplied with glucose. For the study of uterine tissue a small segment was excised from the gross specimen.

Uterine Movements. In the non-pregnant uterus the contractions of the external muscular coat were found to be slow but powerful, the contractions occurring at the rate of ten to sixty per hour. In the parturient uterus the movements of the external longitudinal coat are of two types. In the first they are simple waves. In the second type they are large coarse waves, on which are superimposed smaller contractions. The latter correspond to the waves of type one, while the coarser waves are probably manifestations of a change of tonus. The rate of the small contractions is subject to considerable variation, but is probably not far from 60-75 an hour.

Movements of the Fallopian Tubes. In the non-pregnant tubes the longitudinal fibres have a much faster rate of contraction than those of the body of the uterus, from 120-200 per hour. Occasionally there is an ill-defined tonus wave on which the smaller contractions are superimposed. In the circular fibres the movements resemble those of the outer layer. In the parturient tubes the movement of both the circular and longitudinal fibres became slower but much stronger. The tonus changes were very pronounced.

The Origin of the Uterine Movements. It seems clear to Lieb from the above experiments that the uterus and tubes contract and relax rhythmically when completely separated from the central nervous system. Furthermore, uterine movements are not secondary to impulses derived from the large nerve plexuses in the immediate neighborhood. Inasmuch as strips of muscle of the middle coat show spontaneous contraction, and inasmuch as the movements are not due to impulses derived from the central nervous system, nor from the adjoining nerve plexuses, they must originate within the organ itself. They may be due to an inherent rhythmic function of the muscle cells themselves, or they may be the result of impulses formed in the nerve cells, found in the walls of the tubes and uterus. The absence of a well defined nerve plexus corresponding to Auerbach's plexus in the wall of the intestine, leads Lieb to believe that the stimuli arise within the muscle fibres. From the fact that the tubes contract more rapidly than the body of the uterus itself, Lieb suggests the possibility that the contraction wave begins in the tube, sweeps over it, and finally involves the uterus proper.

PHARMACOLOGY OF THE HUMAN UTERUS.

Epinephrin. Elliot has shown that epinephrin stimulates the myoneural junctions of the true sympathetic system and that the response of any organ simulates in all respects electrical excitation of its sympathetic nerves. The response may be inhibitory or motor. Langley and Anderson have shown that the sympathetic nerve supply to the uterus of the rabbit is always motor. Whether the uterus is pregnant or not, stimulation of its sympathetic nerves invariably causes an increase in the activity of the organ. Epinephrin produces a similar effect. On the other hand, Cushney, Dale, and Kehrer discovered independently that the response of a cat's uterus varies with its functional condition. The non-pregnant organ is inhibited by sympathetic stimulation and by epinephrin. The pregnant uterus is thrown into increased activity. Gunn and Gunn have shown that sympathetic stimulation and epinephrin inhibit the uteri of rats and of guinea-pigs regardless of the physiological state of the organ. "The importance of the innovation of the human uterus now becomes apparent. Is the sympathetic nerve supply to the uterus motor or inhibitory? Is its influence modified during pregnancy? If it is inhibitory in character the employment of epinephrin during labor or in postpartum hemorrhage is dangerous, for it will lead to relaxation and inhibition of the uterus." Lieb found that epinephrin caused the non-pregnant isolated human uterus and the parturient tube both to contract powerfully and with a great increase in the rate of the movements. He concludes, therefore, that the sympathetic innervation of the human uterus is always motor in quality and that the beneficial effects of an

epinephrin douche during post-partum hemorrhage can now be explained. In addition to the constriction of the bleeding vessels, epinephrin produces a contraction of the uterus itself.

Lieb found that the effect of fluid extract of ergot on the isolated uterus and tubes has been, on the whole, disappointing. Only a slight increase in tonus occurred, but there was also a considerable augmentation of the rate and strength of the individual movements. He, furthermore experimented with the three active constituents of ergot, as shown by Barger and Dale. Of these, ergotoxine is an alkaloid specific to ergot. Ergotoxine caused the uterus to contract powerfully and pass into very high tonus. There was a suggestion of tetanus, soon broken through, however, by numerous contractions. The effect was extremely persistent, and despite repeated watching was still present at the end of 75 minutes. Lieb remarks that this marked stimulation of the isolated uterus is interesting in view of the fact that clinically ergotoxine has been shown not to influence the strength of labor pains. The reason is at once explained when the relative doses are considered. The amount causing such powerful contractions in the isolated uterus could not be safely administered to parturient women. Para-hydroxyphenylethylamine, one of the amines present in ergot, is closely related chemically to epinephrin. Its effect on a non-pregnant uterus was to cause a well defined tetanus. In the parturient uterus there was a marked increase in tonus, but neither the rate nor the strength of the contractions was much affected. Beta-imidoazolyethylamine, the third active constituent of ergot, caused an increase in tonus in the parturient uterus, and a distinct tendency towards tetanus.

Pituitary Extract. Pituitary extract produces a marked activity in a strip of muscle from a parturient uterus or tube. The stimulation is very persistent and not easily removed. In only one instance did pituitary cause even a transitory tetanus, and then only after a very large dose was given. On a parturient tube a marked increase in tonus was evident and the movements became less well defined. The effect of pituitary on the non-pregnant tube or uterus is surprising. Small doses usually have no effect. Large doses, such as produce marked stimulation of the pregnant uterus may cause very definite depression, or they may not influence the movements at all. Lieb remarks on the different effect that pituitary extract has on the pregnant and the non-pregnant uterus, and continues to say: "The simplest explanation would be that, like the cat's uterus, the human organ changes its innervation, or rather, during pregnancy its motor innervation becomes predominant. Such, however, is not the case, for epinephrin produces stimulation of the human uterus, whether it is pregnant or not. Nor does the parturient organ appear more sensitive to epinephrin. The only explanation which offers itself is that some substance sensitizes the uterus to pituitary. What

this substance is, whether it is maternal or fetal in origin, I do not know. The sensitizer is certainly not epinephrin. In two experiments the effect of pituitary was compared before and after treating the non-pregnant uterus with epinephrin. In one case the depression produced by pituitary was as marked after as before the epinephrin. In the other, pituitary was without effect before and after the epinephrin application."

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Book Reviews.

Diagnostic and Therapeutic Technic. A Manual of Practical Procedures Employed in Diagnosis and Treatment. By ALBERT S. MORROW, M.D. Second edition. Octavo of 834 pages, with 860 illustrations. Philadelphia and London: W. B. Saunders Company. 1915.

The first edition of this descriptive manual was reviewed in the issue of the JOURNAL for Jan. 11, 1912 (Vol. clxvi, p. 59). In this second edition the original has been thoroughly revised and much new material added. There are forty-five new illustrations and some of the previous ones have been redrawn. The plan of the work, however, remains unchanged and it should continue a valuable reference guide for students and practitioners.

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BEDLAM AND ITS PHYSICIANS.

PERHAPS there is hardly a better example of odd words and their ways in English speech, than Bedlam, that ancient British institution which has become the prototype in literature, as in medicine, of the lunatic asylum, with all that it denotes and connotes. This institution, half alms house, half prison, first founded in 1247 as an adjunct to the monastery of St. Mary, Bethlehem, Palestine, derived its original name and character from those of the mother foundation. Later, becoming separated from this foundation, it has continued an independent existence to the present day and remains one of the most ancient and interesting organizations in medical history. Like all British institutions, Bethlehem Hospital has been constantly and intimately in contact with the life of its time, and its history is interwoven with that of medieval England and of many of the characters in every profession and class by whom that history has been made. Probably no hospital of equal importance has

had a history of more than six centuries so fully documented; and a debt of great significance is owed to the present chaplain of the hospital, the Rev. Edward Geoffrey O'Donoghue, who has recently gathered into a fascinating and fully illustrated volume* the data bearing upon the institution from its origin to the present day. The author's work is done with a charm of style that makes it not only interesting but delightful to read, and presents the story of Bethlehem Hospital with a vividness that is at once romantic and yet historically reliable and accurate. Moreover, the book shows most fully what has been the attitude of society throughout this period towards its insane poor, an attitude associated in the past with brutal abuses, which have been only gradually, and in some cases recently, remedied. From this sociologic aspect, then, as well as from a literary and historical standpoint, the book is of value and concern to modern readers of the medical and allied professions, as well as to the general public.

In the original charter, granted by Henry III, in 1247, protection without term was afforded to the brethren of the House of "Betleem," whose priory was founded in Bishopsgate without, that part of the highway leading through the Bishop's Gate and lying just beyond the walls of London. For nearly a century these brethren not only dwelt at their priory, but "roamed up and down England collecting alms and granting absolution." Finally, in 1329, Edward III granted protection to the Bishop's Gate Hospital or Hospice, apparently the same institution without the walls, where the charitable monks had become accustomed to shelter and care for insane and other mendicants and aged pensioners. Throughout these early days the name of the Hospice was variously spelled "Betlem" and "Bedlem," from which, in later times, was derived the word "bedlam," with which we are familiar.

Very early in its history we find Bedlam hospital associated with the names of the earliest figures in the medical profession of England. One of the first of these was John Arundell, one of the masters of the Bishop's Gate Hospital, a doctor of physie who, in 1457, performed for the institution the functions which we associate with a medical superintendent. Even before him it is probable that those two early pillars of

* The Story of Bethlehem Hospital from Its Foundation. By Edward Geoffrey O'Donoghue. New York: E. P. Dutton and Co. 1915.

English medicine and surgery, John of Gadesden and John of Arderne were, in some capacity, connected with the hospital, since both were presumably priests, and as such would be familiar visitors at the various ecclesiastic foundations of the city. All three of these early English leeches were also physicians to the king, so that the hospital, from its outset, was under fairly intimate royal protection and patronage, through the medium of these men.

Moreover, Bedlam was concerned not only with the court and with the medical profession, but came in contact also with men of letters. In 1408, when John Gower, friend of Chaucer and author of the "Confessio Amantis," lay dying in the cloister of St. Mary's priory at Southwark, he left a legacy of 8 pence to each of the poor patients in Bedlam. This gift seems pathetically prophetic of the similar, though more bountiful, bequest in a later century, of Dean Swift in Dublin, who

Left the little all he had
To found a home for fools and mad.

Bedlam is also referred to, in their works, though not in their wills, by various contemporary men of letters throughout the history of the institution. Evelyn records in his diary under date of April 21, 1657, that he "stept into Bedlame, where I saw several poore, miserable creatures in chaines." Ford in "Perkin Warbeck," makes Symnel say of Perkin,

He's past
Recovering; a Bedlam cannot cure him.

And so recently as our own time Dickens in "Bleak House," says through the mouth of Mr. Snagsby, "Why, not to put too fine a point on it, this is Bedlam, sir." The old English comedy, "Dickon of Bedlam," composed in 1557, deals largely with life in the hospital; and Thomas Dekker, that picturesque and profane Elizabethan, lays many scenes in one of his plays at Bedlam. Shakespeare himself refers to Bedlam repeatedly in King John, King Lear and several of the historical plays.

Sir Thomas More, reformer, seer, and author of "Utopia," lived in the sixteenth century, at Crosby Place, just opposite the Bedlam hospital in Bishopsgate. He must have had intimate personal knowledge and observation of the ways and manners, both of the patients and their attendants, at this institution, for in his "Four Last Things" he says whimsically, "Think not that everything is pleasant that men for mad-

ness laugh at, for thou shalt in Bedlam see one laughing for the knocking of his head against a post, and yet there is little pleasure therein."

Bedlam was not long, however, the only hospital for the insane in London. In 1553 Bridewell Hospital was incorporated by letters patent, and from that date continued a sister institution. In 1557 Bedlam and Bridewell were placed under the same administration, and the history of the two thereafter is most intimately interwoven. Apparently the affiliation was not altogether for the benefit of the two institutions and led to new abuses in the administration of both, especially under the mastership of Dr. Hilkeiah Croke, a Suffolk man, graduate of Cambridge and Leyden, who, in 1604, was appointed physician to James I. He wrote a book on anatomy, "Mikrokosmographia," and was regius professor of anatomy and lecturer on that subject at the college of barber surgeons. Dr. Croke was elected keeper of Bedlam on April 13, 1619, and served in that capacity until 1633. It was during this period that Middleton in his "Changeling," portrays the character of the keeper of the house, evidently sketched from this incumbent.

Early in Croke's mastership, there began to be complaints of his administration. In 1620 was issued an anonymous pamphlet entitled "The Petition of the Poor, Distracted People in Bedlem," in which complaint was made to the governors about the care of the inmates. The keeper, Dr. Croke, absorbed in his literary avocations and private practice, visited the hospital only on quarter days and refused to render any account of his financial responsibility. As a result, the treatment of patients by their irresponsible attendants went from bad to worse. Lupton, a contemporary writer during the mastership of Dr. Croke, says of Bedlam, "It seems strange that anyone should recover here; the cryings, screechings, roarings, howlings, shaking of chains, swearing, frettings, are so many and so hideous." Finally Croke's friend and protector, James I, died and Charles I, his son and successor, proved no such patron indulgent. The neglect and exactions of the hospital had become the cause of such scandal that investigation of both Bedlam and Bridewell was ordered and was carried out by two commissions, which reported respectively in 1632 and 1633. As a result, Dr. Croke was dismissed, in spite of his protests and appeals, though he escaped

prosecution for his pecuniary malfeasance, which evidently had been enormous. Out of donations of some £300, the institution had been managed on less than £60 a year, the balance having been pocketed by the keeper. In addition he had profited by various legacies and fees from the friends of patients. As a result of his disgrace, Dr. Crooke was called upon to resign his fellowship in the college of physicians. He led a random and pitiable existence for some ten years longer and probably died in 1643.

It is a relief to turn from this tale of maladministration and professional irresponsibility to the better days which followed almost immediately. In 1676 Bethlehem Hospital was removed from its medieval home, to a new and commodious building on the city moat at the edge of Moorfields. The total cost of this "New Bedlam" was £17,000, a sum which was raised partly by donations and partly by loans. It was the very next year that there was published a celebrated review entitled "Bedlam Broke Loose," which recorded the "boisterous uproar whereby the lives of the Right Honorable Digby, Lord Gerard, and his mother were eminently endangered" from an assault by an escaped patient. After the establishment in its new home, however, such occurrences became less frequent or unknown in the history of Bedlam. In 1683-4 there was appointed as visiting physician to the hospital, Dr. Edward Tyson, progenitor of a famous English medical family. He treated, instead of punishing, their physical and mental infirmities, established cleanliness and sympathetic discipline in the hospital life, and for the first time introduced really competent nurses instead of brutal attendants and jailers. As a result, not only was the opprobrium of the institution largely removed, but some of the patients actually began to be discharged cured in body and in mind. Dr. Tyson even instituted a system of after-care, to anticipate the likelihood of relapse. He made follow-up visits to discharged convalescents in their homes, provided them with clothing and necessities, and instructed them in habits of industry and right living. He also organized an outpatient or psychopathic department, where former patients might continue to receive treatment and where suspected cases might go for observation. In fact, Tyson resembled his odious predecessor Crooke only in that he was one of the foremost anatomists of his day and published elaborate monographs on the compara-

tive anatomy of the porpoise and the chimpanzee. Dr. Tyson died on August 1, 1708, and was honored by a public funeral procession in which marched the governors of the hospital, the apprentices of Bedlam and Bridewell, many physicians and merchants of the town, and former patients. He was buried in Allhallows Church on Lombard Street, and there his monument still records that "He was to the last hour of his life the devoted physician of Bethlehem Hospital." In his will he left a large legacy for the benefit of the hospital and of other charities in which he had been interested.

Of the later days of Bedlam, Hogarth has perhaps left us a more vivid picture than any which could be made in words, but if abuses recurred under administrations succeeding that of Tyson, they were remedied again by the work of other successors, such as Dr. Richard Hale, the two Drs. John Monro, Dr. James Monro, and others. Finally, in the nineteenth century, the hospital was again removed to its third and present home in St. George's Fields, where the building constructed in 1815, and since several times remodeled, still houses the institution.

There have been many other honorable and notable physicians who have served during this past century and are still serving in the administration of Bedlam, but the change which has been effected, the contrast which prevails between their institution of today and that of the middle ages affords encouraging illustration and realization of the genuine progress of humanity, science and civilization in the five hundred years of the history of Bedlam.

IMPORTANCE OF RESEARCH IN LEPROSY. SIGNIFICANCE OF PULSE RATE IN THE DISEASE.

IN another column of this issue of the JOURNAL we publish the first instalment of a continued article by Dr. Honeij of this city, presenting an important study of leprosy, with especial reference to the significance of pulse and temperature during that disease. This study represents a continuation of the work upon which a preliminary report was made in the issue of the JOURNAL for February 12, 1914 (Vol. clxx. p. 233). In this report Dr. Honeij first suggested the possibility of the value of fluctuations

in the pulse as an indicator of the progress of the disease, and expressed the belief that the observed reversal of the usual febrile diurnal pulse curve might prove of real prognostic importance. As a result of his further investigation, as represented in the present article, Dr. Honeij has demonstrated that "there occurs a definite clinical temperature and pulse curve diagnostic and prognostic of leprosy," with a "frequent and persistent high morning pulse rate in all cases." This constant high pulse rate is most marked in progressive and advanced cases, and "there is a correlation of temperature and pulse in early cases in contrast to a gradual increased pulse rate without similar reactions in progressive and advanced cases."

This valuable piece of medical research is, perhaps, the most important that has yet proceeded from the leper colony at Penikese Island, a hospital which affords a clinic capable of contributing material for useful research and contributions to the scientific knowledge of leprosy. Apart from their service to the individual inmates, the value of such institutions depends on the effective use which is made of them for the advancement of medical science, and in the case of the Penikese Colony the opportunity afforded for such use is considerable. From its alliance with the Harvard Medical School this opportunity is increased in the hands of the medical director, and, from the evidence of the present article, has already been effectively improved.

The importance of new diagnostic, prognostic and therapeutic discoveries with reference to leprosy is augmented by the gradual increase of the disease in this country, though perhaps this apparent growth may be chiefly due to increasing accuracy of detection and diagnosis. In Hawaii, where the disease is most prevalent, a law has been in force since 1909, making the apprehension and detention of lepers compulsory, and requiring all persons to report suspected cases to the Board of Health. In a recent bulletin (No. 66) of the United States Public Health Service, Dr. George W. McCoy presents the data of leprosy in Hawaii during the past thirteen years:—

"The total number of lepers officially apprehended since 1901 has amounted to 1060, or an annual average of about 82. Of this total, 52 were Portuguese, 14 belonged to other European nationalities, 13 were Americans, 29 Japanese, and 61 Chinese. About half of those apprehended were between the ages of 11 and 25 years. It is a curious fact that the incidence of

the disease is almost twice as high among males as among females, the respective figures being 673 and 387. Inquiry into the previous history of the cases showed that association with leprosy persons was admitted in nearly 37%, and in this number the presence of the malady in a parent, brother, or sister, constituted over half of the admitted association. In 188 cases the leprosy was alleged to have existed less than a year, in 131 for a whole year, in 99 for two years, in 92 for three years, in 48 for four years, and in 42 for five years. In 86 it had existed from six to 10 years, and in 49 for more than 10 years."

In the total of 1060 cases the bacillus leprae was demonstrated in 929. The nodular form of the disease now constitutes a larger proportion of the whole than in the past, there being 384 cases of this type, 327 of the anesthetic type and 275 mixed cases. During the two-year period beginning July 1, 1913, the cost of the leper colony at Molokai, Hawaii, was \$412,130.

These data indicate the importance and cost of the continued study of leprosy. There is every reason why the Massachusetts leper colony at Penikese should prove as valuable as that at Molokai, not only for the relief of the disease, but for its study and for contributions to its ultimate knowledge.

GOLF BALL ACCIDENTS.

A FORM of accident which is deplorable, not only on account of its serious character, but also because it is preventable, is the bursting of a golf ball, with its frequent result of destruction of eyesight. Accounts appear in the lay press from time to time of these mishaps, and these have been confirmed by several reports of such cases in medical journals. In a recent issue of the *British Medical Journal*, Drs. Elliot and Inman report such a case and refer to several others in the literature.

It appears that there is no danger of a golf ball exploding when subjected only to the ordinary vicissitudes of play, but the exploration of its interior by too curious individuals is apt to have a tragic denouement. Even then there would be no danger if the investigator would be content with unwrapping the ball layer by layer, but in many cases this process is too tedious and must be expedited by the use of a knife. The English authors mentioned above intimate that

* Abstracted in a recent issue of the *Lancet*.

s accident is less frequent in the British Isles than in America, because of the more inquiring turn of the Yankee mind.

Golf balls are dangerous only when the core is fluid, hence the air or the solid core balls may be cut into with impunity. The usual substance used in the liquid core is soft soap, which, of course, is strongly alkaline, and in some cases even more dangerous materials, such as sulphuric acid, have been found. Rarely, water is used and this is comparatively innocuous. The fluid is confined in a rubber bag tied with a string, and around this are wound many yards of rubber tape by machine, and the liquid is thus subjected to enormous pressure. When a knife is used to cut through these layers of tape it suddenly penetrates into the bag, and the liquid contents are ejected with great violence. Should any of these strike the eye, as has been the case a number of instances, the trauma itself plus the irritating character of the fluid, is likely to have serious results. Some cases have been seen by an ophthalmologist within two hours after the injury, and have been placed under a general anesthetic to permit of heroic treatment, but have, nevertheless, resulted in complete loss of vision.

There has been some legislative agitation to prevent the sale of liquid core golf balls, but only one state has actually passed such a law. Most golf clubs post warnings in their club houses against the cutting open of balls, but, unfortunately, this risky experiment is usually performed by caddies and others who do not heed these placards. One remedy, then, which should suggest itself would be that golf players refrain from presenting caddies with used balls, or at least warn them of the danger of cutting into them. Should a golf player wish to cut into a ball for any purpose he should not do it in the presence of bystanders; he should wear gloves, and he should place between himself and the ball he is dissecting some such protection as a pane of window glass.

Obviously it behooves the profession to warn their golf-playing patients of the dangers of the liquid core ball. If a case is seen immediately after a projection into the eye of the contents of a ball, thorough cleansing of the eye is, of course, imperative, even if a general anesthetic is required. Experts now state that the liquid core ball has no greater elasticity than the solid core ball manufactured by certain leading deal-

ers, therefore there would seem to be no excuse for this deadly plaything.

DR. WILLIAM WALLACE MORLAND, AN EARLY EDITOR OF THE JOURNAL.

A CORRESPONDENT has recently sent to the JOURNAL a clipping of a verse written by Dr. William Wallace Morland, a much beloved friend of his father, and a former editor of this JOURNAL. The verse is printed below. Dr. Morland edited the JOURNAL between the years 1855 and 1860. He, with Dr. Francis Minot, succeeded Dr. J. V. C. Smith, who resigned his long editorship to become mayor of Boston. In the issue of the JOURNAL for February 15, 1855 (Vol. lii, No. 2), the new editors published an editorial which they entitled "Our Difficulties, Our Resources, and Our Intentions," of which the following are excerpts:—

"It is far more difficult to conduct a weekly journal, so that it will prove acceptable and useful, than it is to prepare the more imposing quarterly, or even the monthly. We must avoid bulk and abstruseness of matter, at least generally. Articles which contain much that is valuable, in a condensed form, are indisputably those which should predominate. On the other hand, brevity must not render communications obscure, nor lead us to furnish a collection of mere *items* to our readers.

"We are well aware that the practitioner in the country, the greater proportion of whose time is taken up by his out-of-door duties, cannot if he would, read long and recondite articles; he needs a digest of medical novelties, and these should be selected with a view to their practical utility and truthfulness, or he will be better without them. The journalist should seek to give whatever will assist, be it only in those minor points which become questions in the daily round of professional duties. It is not, however, judicious to make a medical journal wear, too literally, the garb of the newspaper. While it is not easy to have it unfailingly light and sparkling, we believe it may at least, be always instructive."

That the task of editing a weekly journal in this practical and efficient manner did not prove to be a simple task, may be judged from the editorial written by Dr. Morland and Dr. Minot at the time of their withdrawal from the joint editorship in 1860, printed in the JOURNAL of January 26 (Vol. lxi, No. 26). They write as follows:—

"The dissolution of our official relations to the Journal, and through it to the medical public, is not, as will be imagined, a matter of indifference with us. Maintained, as they have been, for the period above mentioned, we can truly say that, although they have necessitated the expenditure of a very large amount of time and labor, they have in many respects proved highly advantageous to ourselves. The training which an editor of a medical periodical is obliged to undergo in the faithful discharge of his duties can hardly be other than wholesome discipline, even if fatiguing, and not infrequently irksome and exacting."

That Dr. Morland stood high in the esteem of his contemporaries is evident by the following paragraph from a record of the Boston Society for Medical Improvement.

"About the year 1840 interest began to wane: new blood was needed. Of this it received the best: Samuel Cabot, Jr., Henry J. Bigelow, George Hayward and Morrill Wyman; while S. L. Abbott, B. F. Cotting, N. B. Shurtleff, Buckminster Brown, Lyman, Morland, Oliver, Townsend, Gay, Derby and Francis Minot were among those admitted to the Society during the 1840-50 decade."*

It is also interesting to note that the record previously states that the "new-born 'Boston Medical and Surgical Journal' received the Society's support," and that in January, 1855, the publication of the transactions were transferred from the *American Journal of Medical Sciences* to the BOSTON MEDICAL AND SURGICAL JOURNAL, where they continued to appear until recent years.

Dr. Morland was the author of a book on "Diseases of the Urinary Organs," which met with considerable success. In 1866 he won the Fiske prize by an essay on uremia. His paper on "Florida and South Carolina as Health Resorts," which appeared in the JOURNAL in 1872, was the best and best known of his smaller writings. He died in 1876, sincerely mourned by his friends and confreres. His obituary in the JOURNAL states that "as a man and a physician Dr. Morland was alike excellent, of much learning and ability joined to the most charming and unpretentious manners."

The following Spenserian stanza, of his composition, shows that his "clerkly hand" had abilities in metrical as well as editorial composition.

HOME.

"Home is the altar where affection's flame
Unalterably bright should ever glow.
In lasting letters friendship's sacred name
Should beam upon the group that kneels below.
There if affliction's saddening power they know
Fond love should heal the wound with tender care,
Bend o'er the couch, and all things else forego
So that it soothe the heart and kindly share
The griefs which erring man is aye constrained to
bear."

LEGALIZATION OF ABORTION IN FRANCE.

A PECULIAR situation has sprung up in France in the wake of the German invaders. The claim is made that a number of French women are pregnant as a result of violation by the enemy. Naturally the situation is odious to them and numbers of them have appealed to the medical profession for relief. They protest against being obliged to carry to maturity the fruit of a forced union, especially since the assailants were enemies of their country. Consequently appeals for abortions have been made by many of these unfortunate women.

The question raised has naturally received a great deal of discussion. Many eminent physicians, whose patriotism and sympathy seem in times like these to be rather ascendent over their calm professional judgment, have expressed themselves as being in favor of this procedure. However, the balance of opinion seems to be against it, and the opinion expressed by Professor Landouzy of the University of Paris is the one which is generally accepted. He holds that the induction of abortion is justified only when the life of mother or child is jeopardized by the continuation of pregnancy.

To avoid the hardships which would eventuate if the families thus saddled with an unwelcome addition were obliged to support the child, M. Maloy has suggested a solution of this problem which has been adopted. The mothers are allowed to abandon these children to the State, which will bring them up as foundlings. The father is allowed to disclaim his paternity. It would be interesting psychologically to know whether or not in all cases the mother will be willing to surrender the infant, in spite of its alien blood.

* Harrington's History of the Harvard Medical School, Vol. II, p. 790.

MEDICAL NOTES.

BUBONIC PLAGUE AT HAVANA.—On April 10 there were reported to the Public Health Service two cases of bubonic plague and one death. The official bacteriologist of the Cuban government has been placed in charge of the situation.

TYPHUS IN SERBIA.—It is reported through the British Red Cross Commission to Serbia that typhus is increasing and the percentage of deaths is between 50 and 60%. At Monastir, for example, there were found three thousand typhus patients with only ten doctors to attend them. Report from Nish on April 11, states that thirty British and eighty French physicians have been sent from that city to combat the epidemic.

SMALLPOX AT SAN DIEGO, CALIF.—A passenger on board the steamer *Northern Pacific*, on its arrival at San Diego, Calif., was found to have smallpox and the steamer was quarantined. There were 327 passengers on board; all were vaccinated and a few allowed to land.

ERADICATION OF RATS IN NEW ORLEANS.—Since the campaign against plague was begun in New Orleans last autumn, 318,000 rats have been killed and subjected to bacteriological examination. Not a case of plague has occurred in the city since October 4, and Dr. W. C. Rucker, who has charge of plague eradication in the city, states that "it will not be long before New Orleans will be one of the most rat-proof cities in the world."

FIRE AT CHICAGO STATE HOSPITAL.—Report from Chicago states that on April 13 a wooden frame annex of the Chicago State Hospital for the Insane at Dunning, Ill., was destroyed by fire. Two hundred convalescent inmates were safely removed. The loss is estimated at \$50,000.

A FOUNDATION FOR THE STUDY OF COMPARATIVE BACTERIOLOGY.—It is announced that the Rockefeller Foundation has been empowered to establish an institution for animal research on property adjacent to Princeton University. Though not connected with the University, there will be a profitable coöperation between its laboratories and that of the foundation. Dr. Theodor Smith, now of Harvard Medical School, will be in charge of the scientific work, and with corps of assistants will be in a position to establish a laboratory which may become one of the greatest in the world for the study of comparative pathology. Over a million dollars is available for the erection of laboratories and their equipment.

ST. MARY'S HOSPITAL, ROCHESTER, MINN.—The twenty-fifth annual report of St. Mary's Hospital, Rochester, Minn., contains a record of 390 patients operated upon during the year.

and a total number of operations of 10,939. The capacity of the hospital for patients is three hundred beds. The report follows with a detailed list of operations performed. There were 893 operations for appendicitis, 1730 for goitre and 503 for gall-stones.

NATIONAL EFFORT TO IMPROVE TEACHING ON TUBERCULOSIS.—For the purpose of securing more co-operation from physicians and nurses in the anti-tuberculosis campaign, The National Association for the Study and Prevention of Tuberculosis has inaugurated a movement to bring the importance of this subject to the attention of these two groups.

Among the first things which the Association is trying to do is to induce the medical colleges and schools of nursing to give more instruction, particularly of a clinical nature, on tuberculosis. An effort will be made also to reach the individual practitioners and nurses by special booklets prepared for this purpose. The clinical and other facilities of the various organizations affiliated with the National Association will so far as possible be made available for the widest possible use in training doctors and nurses in tuberculosis work.

The object of this campaign is stated as primarily to secure more accurate and earlier diagnosis of tuberculosis on the part of physicians and to show nurses the great opportunities of service in the home care of consumptives.

NEW YORK DEATH RATE LOWER THAN LAST YEAR DESPITE THE GRIP.—The increase in the mortality as noted for the week ending April 3, 1915, continued during the past week and rose to even a greater height. The number of deaths during the past week was 1934, an increase of 103 deaths over the preceding week. Both weeks of April combined showed an increased mortality of 550 deaths over the corresponding two weeks of 1914. This unexpected rise in the death rate has had as its principal factor the increased prevalence of a virulent form of influenza. The number of deaths during the past week from this cause was 47, more than two and a half times as many deaths than were charged to this disease in the corresponding week in 1914. The effect as usual of the greater prevalence of influenza was not only an increase in the deaths from the diseases of the respiratory organs which influenza particularly affects, but also a greater increased mortality in many of the chronic organic diseases.

The deaths from acute bronchitis, broncho pneumonia and lobar pneumonia showed an increase of 173, chronic organic heart diseases, one of 49 deaths, chronic diseases of the kidneys, 37 deaths, diseases of the nervous system, 16 deaths, diseases of the digestive system, 35 deaths, and all forms of tuberculosis, 16 deaths over the figures for the corresponding week last year.

All ages, with the exception of children between one and five years of age, suffered from

this increased mortality. The infants under one year of age showed an increase in the number of deaths of 67, between 5 and 55 years of age an increase of 178 deaths, and at 65 years of age and over there were 119 more persons died than in the corresponding week of 1914. By reason of the diminished prevalence of scarlet fever and diphtheria the mortality of the children at the ages between one and five years was lower by 16 deaths; the death rate from all causes increased 2.41.

Despite the unfavorable influence of grip on the mortality, the health of the city this year compares very well with that of last year. The death rate for the first fifteen weeks of 1915 was 14.57 per one thousand of the population as against the rate of 15.52 in the corresponding period of 1914, a decrease of .95 of a point.

OFFER OF THE ROCKEFELLER FOUNDATION TO DR. GORGAS.—On April 11, Mr. Jerome D. Green, secretary of the Rockefeller Foundation, published the following official statement of the circumstances of an offer recently made by the foundation, to Major General William C. Gorgas, surgeon general of the United States Army.

"The Rockefeller Foundation has invited Gen. Gorgas to become a permanent member of its staff in the capacity of general adviser in matters relating to public sanitation and the control of epidemics. The trustees of the Foundation have for some time been aware of Gen. Gorgas's strong belief in the feasibility of completely eradicating yellow fever from the face of the earth. During these two years of the Foundation's existence the attention of the trustees has been carefully given to problems of public health, including the control of epidemics, and the need of a competent adviser and executive in this field has been strongly felt.

"When in coöperation with the American Red Cross, the Foundation undertook the important task of helping the Serbian government to control the epidemic of typhus and the threatened epidemic of cholera, the trustees again naturally thought of Gen. Gorgas as a man pre-eminently fit to be of service in this emergency, and at a meeting held in New York last week they decided to make him a definite offer. This offer is now taken under consideration, and he will doubtless communicate his decision within a few days. The Foundation's invitation contemplates his retiring from active service, as he is now entitled to at any time, but it does not contemplate his resignation from the army unless he should be assigned to duties of such nature as to be incompatible with the regulations affecting retired officers.

"Such a duty would be involved in his going to Serbia at the present time, which he could do as a representative of the Rockefeller Foundation, but not as an officer on the retired list of the army. The sanitary commission of the American Red Cross has actually been sent to

Serbia in charge of Dr. Richard P. Strong of the Harvard Medical School, as director. The Rockefeller Foundation is co-operating with the American Red Cross in the support of this expedition, and if Gen. Gorgas should except the Foundation's offer he will doubtless be largely influential in determining the nature and extent of its participation in the work.

"In justice to Gen. Gorgas it should be stated that there is no foundation whatever for the statement that he is to receive a salary of \$50,000. The offer of the Rockefeller Foundation includes a moderate salary and the assurance of the usual allowances in the event of resignation or death. If the offer proves attractive to Gen. Gorgas it will be because of his sympathy with the general aims of the Foundation in regard to public health and his belief that the resources placed at his disposal will enable him to render a large service to humanity along the lines of his professional experience and ambition."

It is not yet definitely announced whether Dr. Gorgas will accept this offer, but it is sincerely to be hoped that he may be able to do so since his services, important though they are, to the army, can thus be more effectively employed in a wider field for the benefit of a greater number.

EUROPEAN WAR RELIEF FUNDS.—On April 17 the totals of the principal American relief funds for the European War reached the following amounts:

	N. Y.	N. E.
Belgian Fund	\$1,019,089.92	\$248,179.57
Jewish Fund	615,770.43	
Red Cross Fund	479,615.18	
American Ambulance	385,562.89	
Committee of Mercy	142,441.20	
Polish Fund	38,062.71	43,630.85
Serbian Fund	27,050.00	
Persian Fund	24,542.11	

BOSTON AND NEW ENGLAND.

BOSTON CITY HOSPITAL ALUMNI ASSOCIATION.—The annual meeting of the Boston City Hospital Alumni Association, held in this city on April 7, was attended by seventy-five members and their guests. Dr. Paul Thorndike was toast-master at the dinner and the principal speakers were Dr. John B. Blake, Dr. Homer Gage, Dr. John J. Dowling and Dr. Robert W. Lovett. Dr. Lovett was elected president for the ensuing year. Dr. Henry A. Wood, vice-president, Dr. Cadis Phipps, secretary, Dr. William R. P. Emerson treasurer and Dr. Edward H. Nichols a member of the executive committee for five years.

BOSTON MILK AND BABY HYGIENE ASSOCIATION.—The recently published sixth annual report of the Boston Milk and Baby Hygiene Association records the work of that organization for the past year. During this period 4,097

babies were cared for by the Association which now maintains twelve milk stations in various parts of the city. In 1911 the infant mortality in Boston was seventh among the large cities of this country; in 1912 it was fourth, in 1913 third and 1914 second, being tied with St. Louis at a rate of 103 per thousand births.

FOOT AND MOUTH DISEASE IN MASSACHUSETTS.—There have been reported no new cases of foot and mouth disease in Massachusetts since March 18. While it is reasonable to hope that the disease has finally disappeared, the Bureau of Animal Industry is still maintaining a strict quarantine, for it is possible for the germs of the disease to require this length of time for their incubation. A like number of days occurred between the first and second outbreaks and the department is not willing to relax its vigilance until all possibility of infection is past.

MEDICAL LEGISLATION.—On April 13 Governor Walsh signed a bill, recently passed by the Massachusetts General Court, intended to prevent communication of dangerous diseases in mattresses and other articles of bedding. It is provided by the bill that it shall be a criminal offense "to manufacture or sell any mattress, pillow, cushion, or similar articles which contain any material previously used in or about a hospital or in connection with any person who has suffered from an infectious or contagious disease." The penalties provided for violation of the provisions of this law are imprisonment for six months or a fine not exceeding \$500.

A NEW BUILDING FOR SHARON SANATORIUM.—In its recently issued annual report, Sharon sanatorium announces the receipt of a gift of sufficient funds to erect a new building for the treatment of children suffering from tuberculosis. It is to be built as a memorial of a friend of the sanatorium whose relatives have made the gift for this purpose.

CONFERENCE ON HEALTH BOARD ADMINISTRATION.—On April 29 there will be held in Ford Hall, Boston, a conference under the joint auspices of the State Department of Health and the Massachusetts Association of Boards of Health, to discuss the general subject of cooperation between the local boards of health and the State department. Every city and town in Massachusetts is asked to send representatives. The speakers for the morning session will include President Emeritus Charles W. Eliot of Harvard, Professor Irving Fisher of Yale, Miss Adelaide Nutting of Columbia, Governor Walsh and Health Commissioner Dr. Allan J. McLaughlin. In the afternoon the heads of some of the divisions of the State Department of Health, district health officers and representatives of the municipalities will speak, followed by a general discussion.

NEW BIOLOGICAL LABORATORY AT BROWN UNIVERSITY.—The Arnold Biological laboratory, presented to Brown University by Dr. Oliver H. Arnold of Providence, has just been opened to classes. The building will accommodate 400 students including graduates. Dr. Arnold's legacy of \$80,000 represented the savings of a lifetime of a physician with a country practice.

HOSPITAL BEQUESTS.—The will of the late Mary B. Lewis of Framingham, Mass which was filed on April 6 in the East Cambridge Probate Court, contains a bequest of \$2000 to the Framingham Hospital.

The will of the late Anna E. Smith, formerly of Boston, who died recently in New York City, was filed for probate on April 7. It contains bequests of \$200,000 to the Peabody, (Mass.) Home for Aged and Indigent Women, \$7,500 each to St. Luke's Hospital, New York, and the Inwood Home for Consumptives; and \$5,000 each to the Mary Hitchcock Memorial Hospital, Hanover, N. H. and the Massachusetts Homeopathic Hospital, Boston.

The will of the late Catherine Brown of Malden, Mass., which was filed on April 13 at the East Cambridge Registry, contains a bequest of \$2,500 to the Malden Hospital.

Massachusetts Medical Society

HAMPSHIRE DISTRICT MEDICAL SOCIETY.—The annual meeting of the Hampshire District Medical Society will be held at the Forbes Library, Northampton, Thursday, May 13, 1915, at 11.30 o'clock, a.m. Officers of the Society and councillors, censors and a commissioner of trials for the general society will be elected and the presidential address will be given by Dr. Edward W. Brown, of Northampton.

JOSEPH D. COLLINS, M.D., *Secretary.*

Miscellany.

THE GERMAN BIRTHRATE.

IN previous issues of the JOURNAL we have, from time to time, commented on the steadily declining French and English birth rates. This decline has made itself felt also, though to a less extent, in recent years, in Germany. In the issue of the *Lancet* for March 20, is a report of a paper on this subject presented at a meeting of the Deutscher Verein für Oeffentliche Gesundheitspflege, by Dr. von Gruber, from which the following extracts seem of interest.

"In the year 1870 per 10,000 inhabitants the total of marriages was 77, of births 401, and of deaths 290. In 1911, the latest year for which complete statistics are available, the total num-

ber of marriages was 78, that of births 295, and that of deaths 182. Thus, in spite of the declining birth rate, the excess of births over deaths has remained almost constant.

"This shows that though the number of marriages has practically not changed, the birth rate has fallen by more than 25%, and the mortality by 35 to 40%, which fact accounts for the increase in the nation's surplus population. The fall in birth rate is, curiously enough, greatest in the hitherto so prolific Saxony, where it is more than 40%. The fall is greatest in the towns and centres of industry, but it is also evident in the country districts, particularly in the neighborhood of large towns. As a rule, the fall is greater and more rapid among Protestants than among Catholics, and it is greatest in communities which elect Social Democratic representatives. The fall is most striking in Berlin, where the birth rate has diminished by a third within the last thirty years. Here the birth rate is highest in the working-class districts, but even in these the fall is noticeable. It is beyond dispute that the lower classes in town and country have followed the example of the upper classes in the limitation of offspring. Berlin can no longer maintain its numbers by its own birth rate; thus in 1912 1000 women, whose ages ranged from 15 to 45 years, gave birth to only 73 living children, and this figure would have to be raised to 113 if the population of Berlin were to be kept up to its present level.

"The fall in the birth-rate is largely due to alcoholism and venereal disease, both of which are on the increase. Venereal disease, in particular, is to blame. In 1910 it was estimated that in a very large sick-club in Berlin 4.9% of the women and nearly 9% of the men suffered from venereal disease. Lenz has even calculated that 90% of the men in Berlin have at some time been infected with syphilis. What, however, is most important is the dependence of the decline of the birth rate on systematic prevention of conception. A table dealing with the fall of the birth rate in Berlin shows that this fall applies particularly to the birth of children in families already possessing a child or two. Once Germany adopts the two-child system the methodical temperament of the nation will ensure its uniform practice and inevitable consequences. Particularly ominous is the low productivity of the most gifted. Cross breeding among the mentally well endowed is of great importance in the evolution of intellectual qualities, as is well illustrated by the Imperial House of Hohenzollern. Nothing is more important for the existence and welfare of a nation than a sufficient supply of gifted leaders; without such the mass of the people is helpless.

"The causes leading to the voluntary limitation of the family are many. Recent advances in science, improving the conditions of life and prolonging it, are all to the good of the individual rather than of the community. Indeed, these interests are apt to clash, and owing to the

present selfish individualism of man, a course is often chosen which benefits the present generation at the cost of succeeding generations. The family is no longer an institution for the reproduction of the race; and the child's work and support of the family are progressively reduced by laws insisting on hygienic and educational measures and the limitation of child labor. Owing to insurance against old age and disease, parents no longer feel the necessity for creating an offspring which shall keep them in their old age. Lack of house accommodation in the towns, the employment of the mother outside her home, and the employment of girls in shops and factories instead of in domestic duties, render the successful rearing of large families difficult."

By way of remedy for these conditions the following suggestions are made:—

"An estimate of the fate awaiting a nation which methodically adopts the two-child system shows that a population of a million with a yearly birth rate of 19.8 to the thousand must after 15 years have dwindled to 918,400, after 50 years to 676,938, and after 100 years to 347,075. Ultimately the wealth of the individual would suffer. At present, according to Prussian statistics, the income per head of the population is 260 marks. According to the above hypothetical calculation of the decline of the population, the income per head would have risen after 15 years to 283 marks, but after 50 years it would have fallen to 269, and after 100 years to 265 marks. It is not sufficient to rely on reducing the infant mortality, for even if this were brought as low as 7%, to which figure only New Zealand and Norway have attained, the gain thus effected would be practically neutralized by a further fall in the birth rate of 2 per 1000.

"It is, therefore, imperative that a reform should aim at encouraging fertility and removing the advantages at present associated with sterility. The substitution of polygamy for monogamy, the emancipation of woman, and the state supervision of the child are inferior to the old family system economically and from the point of view of race-hygiene and culture. The maintenance and education of children in public institutions would be twice as expensive as the present family system. Were the family tie dissolved and loose connections substituted, venereal diseases would spread, the standard of parentage would be lowered, and the frequency of sterility would be increased. It is an insufficient inducement to give birth to a child that its mother is permitted to visit it every Sunday in some state institution. The family ties must, therefore, be strengthened, and the attempt to place the married and unmarried mother on an equal footing must be checked. The present popular vogue of honoring the unmarried mother has little to do with compassion for her fate or a misplaced fervor for the preservation of the race; it is rather an insidious attempt to raise the social status of the unmarried

mother and thus sweep away a hindrance to loose connections.

"For the sake of large families housing accommodation should be improved, garden cities should be built, and cultivation of the land should be encouraged. The community as a whole should contribute so largely to the rearing of children that it would be practically as cheap to have a large as a small family. These contributions should be available for every class, from the lower to the upper middle; for it is deplorable that the most virile class, to which officers belong, should find it difficult to raise large families. The standard of fertility should be so high that each couple would breed 3.75 children, which, after the necessary reductions, would be equivalent to about three children living to the age of 14 years. Were the Government to subsidize with 200 marks a year every child in excess of the first two, Germany, with a population of 66.3 millions, would have to pay 840 million marks a year. This sum could be raised by progressive taxation of the unmarried, of the childless, and of families with few children. Taxes on luxuries could also be raised for this purpose. It must be admitted, however, that an evil such as the two-child system cannot be eradicated by legislation."

It is evident that the apparently inevitable effect of high civilization in reducing the birth rate has already been making itself felt in Germany, though thus far to a less extent than in France, the United States and England. It remains to be seen whether German methods of efficiency, by the recognition of this disastrous tendency, will be able to control and correct it before its results become fatal to the nation. The decision of this question is, perhaps, one of the most interesting of the many involved in the outcome of the present European war.

Correspondence

PARIS LETTER.

FRENCH COSTUME IN WARTIME.

(From Our Special Correspondent.)

PARIS, April 3, 1915.

Mr. Editor: When I was a student at the Faculty of Medicine here Professor Tarnier was a man already well on in years; he used to spend a good part of his lecture-hour in re-adjusting an impossible pince-nez that slipped from his nose at every gesture, and in stumbling over the pronunciation of the word dyspnea, at which his tongue balked with an invariability truly remarkable. The Professor is usually supposed to have invented the axis-traction forceps; but popular report as to this point ran somewhat otherwise. The Tarniers were two,—one the obstetrician, the other an artillery colonel; now it was creditably advanced that the obstetrician put in all his time on cannon, but that the afore-mentioned forceps was really the fruit of the gun-man's brain! This species of mental aberration, the succumbing to

the fascination of something altogether out of one's real province, is a phenomenon by no means rare; and it is an attack of something on the same order that leads me, I suppose, to wish today to hold forth on a topic for which I am eminently unfitted,—that of clothes.

Walking along the Avenue du Bois this Sunday afternoon, it was impossible not to be struck by the extreme sobriety of the women's dress; a great many were in full mourning, of course, and it seemed as though the rest had discarded every attempt at fashion or color out of respect for the feelings of their sorrowing sisters. It was all in the proper note, and very much what was to have been expected from this warm-hearted people; but still, I have never been impressed so forcibly by the sight before,—possibly because it has been a long time since I have been in the midst of such a crowd as there was out walking today. According to the Almanac it was Palm Sunday; but from the atmospheric conditions one would never have dreamed that we are so far on in the year, or that April will be here in half a week; the horse-chestnut buds are not yet opening along the Boulevards,—the season being in fact practically three weeks late.

For several months I have been making the remark to myself that never before have I seen so many comely young women moving about, and particularly of one class,—possibly what might be called the lower-middle, the wives of the better-paid workmen, the class of woman that in Paris wears no hat, but goes about neatly-dressed and bare-headed. At the present moment you see these respectable, attractive women, with or without a child or two, all over the place; and the reason for this unusual occurrence is, I imagine, the following: Under normal conditions the women of this category stay at home and look after their ménage, only moving abroad with their menkind on Sunday afternoons or Fêtes; but their husbands are now all away at the war, and they have, therefore, to hustle about themselves, on errands, to draw their allowances, and for a multitude of reasons depending on the war, not the least weighty of which is the expediting of the frequent packages of cigarets and chocolate to the *bonhomme au front*. Never at any time during my long sojourn in Paris have I seen so many good-looking Frenchwomen, no, not even during the month of June, in Grand Prix week of a normal year; you can then see plenty of fine clothes, but not many pretty faces, except now and then among the ranks of the *haute cocotterie*. Again and again I have lost myself in admiration of the garb these women adopt. Having little money, only enough to keep the home going, they make no attempt at dress; with a neat and becoming coiffure, a plain black coat covering everything, they present a contrast to the slatternly London and New York women of the same class that is as striking as it is unflattering to the latter.

Paris is for the moment simply swarming with soldiers. What they can all be doing here, God only knows! They are not wounded; on the contrary, fine strapping fellows, with a color on their faces that seems to indicate actual service. If General Joffre has so many men that he can afford to let them spill over loose in this way, why so much the better for our side. But we are talking about clothes today, and what I wished to say in this connection bears on the new French uniform. I ought rather to put the word in a multi-plural, for no two of these *poilus* seem to have the same; if this state of affairs continues it will be a mighty wise colonel who will know his own *terribles-toriaux*,—or, excuse me,—*regulars*, as there are no more territoriaux now, they having all been promoted to regulars for good conduct, so that one sees regimental numbers running up into the *four-hundreds*! I ought to explain that it was long ago decided that the showy French uniform was impossible for modern warfare, and the new cloth, a light, grayish-blue, had been duly selected before the war broke out, though it had not yet been introduced into

the army. But if I can judge from appearances the present idea is that any fellow with the requisite shekels can buy the new uniform if he likes,—or as much of it as he can afford; and the kaleidoscopic result is something wonderful. This new uniform is really uncommonly smart,—incredibly so for French troops. I saw what I took to be a youth of 16-17 come into a restaurant the other night, with everything spunking new, and he really was a sight for the gods. He had two stripes, at his age, if you please, and from the distressing newness of everything, and his killing attitude of self-approbation, there was no doubt but that he was some young daredevil volunteer who had been making things lively in the trenches and had obtained rapid promotion in consequence and eight days' leave in which to show himself to his adoring girl, who was with him,—naturally. But though this fitness obtains with the officers, with the men the sartorial effects are excruciating; but they are all such jolly, unassuming fellows, and so utterly unconscious of how funny they look, that one has to control one's features. There seems to be no standard blueish-gray; every variety and shade can be met. Again, there can be observed every possible degree of mixture with the old regulation uniform. Furthermore, there is no discernible system in color and position for regimental numbers, lapels and stripes. In a word, it is chaos,—and eminently French! What a regiment of these *laissés-pour-compte* must look like, is quite beyond my power to imagine; and, by the way, this strikes me as a not-at-all undesirable result to have obtained, as with this delightful lack of uniformity it seems as though the singling out and picking off of officers by the enemy's sharpshooters will become a matter of great difficulty. In parenthesis it can be said that his success in the present war has simply transformed the French soldier—you would not know him now! He has become a man who needs considerable sidewalk, as he strides by; and he carries himself in an altogether unaccustomed manner. It is not swagger, not even when at 20 he moves along with one arm in a black silk sling and the *médaille militaire* on his juvenile bosom; swagger may come when the more tangible results of the war materialize, but at present it is only what you might call reawakened consciousness, *on est quelqu'un pardi!* We are just becoming aware that we have been living under a nightmare for 45 years, and that daylight is dawning again, *at last!*

More qualified pens than mine have no doubt told you that the feminine uniforms this Spring are to be short and wide in the skirts, with high boots. The ridiculous and dangerous sheath-skirt has suddenly jumped to yards and yards of width; but the shortness of it—Holy Smoke! nearly half-way to the knee. A marked feature of Paris life, this winter, has been the eclipse of the *demi-mondaine*; it would really be curious to know what has become of them all. Still, now and then, on a sunny morning, you will meet one on the avenue,—also very soberly dressed, but still, fashionably. And to see women of 25-35, with their figures rounded at the proper points striding by with their newly-acquired leg-freedom in skirts about long enough for schoolgirls of twelve, is about as ludicrous a sight as one could wish for. French women were at one time supposed to lead the world in taste in dress; but really, their efforts of the last few years,—first the *entravée*, then the sheath, and now the rope-skipping hoyden! One wonders whether their reputation for taste has not been all a misunderstanding. The finest, and at the same time most sensible women I ever saw are those of an isolated valley in the south of Norway, the Saetersdal. This valley is divided by a long lake into a lower half, in communication with the outside world, and an upper half, practically walled-in on all sides by high mountains. In this upper half the language and customs are still those of centuries ago, and among the latter the fashion of dressing is remarkable. Every woman in the region clothes herself exactly alike, old, adult or child,—white homespun on week days, and black on

Sundays. And not only are the body and skirt similar, but the head dress, shoes and stockings also; and this brings me to my point, which is, that for old, adult and girl alike the skirt comes just far enough down to cover the garter. As these women all work in the fields, and the climate is a wet one, it is at once apparent what a sensible costume this is; and as every woman dresses alike, it is equally evident what an amount of jealousy and heartburn they must be spared! But if you could see the effect that centuries of untrammelled legs, together with rational footgear, have had on the gait of these creatures, as well as on the way in which they carry themselves, you would realize the deformities that civilization has imprinted on the figures and movements of our women-kind. I have introduced this digression about my lady-friends of the Saetersdal because I am wondering whether, now that the Paris skirt has begun to climb, we may not, in a Spring or two, be treated to something on the Saetersdal order? But the agonizing question that presents itself is, whether the understandings that will thereby be revealed to an expectant world, will to the same degree be worth contemplation as those of the peasants of Norway.

"S."

A MISSTATEMENT CORRECTED.

ZOOLOGICAL LABORATORY, HARVARD UNIVERSITY,

CAMBRIDGE, MASS., March 29, 1915.

Mr. Editor: In your JOURNAL, Vol. x, p. 224, Sept., 1872, you report, under the head of Medical Miscellany, a case of eight children at a birth. This remarkable instance has found its way into such texts as that of Gould and Pyle, *Anomalies and Curiosities of Medicine*, 1897, p. 153, and into such special papers as that of Wilder on duplicate twins, *American Journal of Anatomy*, Vol. iii, p. 393, 1904. The case is of recent origin and so remarkable in character that it seemed desirable to ascertain beyond a doubt its authenticity. To this end a letter of inquiry was addressed to the county clerk of Trumbull County, Ohio, where it was said to have occurred, with the request that further information concerning it would be gratefully received. The response of this official was as follows:

M. B. TAYLER
CLERK OF COURTS
TRUMBULL COUNTY

WARREN, OHIO, March 30, 1914.

Mr. G. H. Parker,
Cambridge, Mass.

Dear Sir: In reply to your letter of the 24th inst., in regard to the item in the medical journal, would say that after inquiry I am informed that there is no truth in the statement. It seems that a practical joker of those days went into one of the newspaper offices here and set up an article which he succeeded in having printed in one or two copies of the paper and then took the article out and distributed the type in their proper places, and securing the copies which had the article in, sent the same to a New York paper, thinking he had accomplished a great joke. This is practically all the information I can obtain in regard to the matter but can state that there is no truth or foundation in the report whatever.

Very truly yours,
(Signed) M. B. TAYLER.

From the reply of Mr. Tayler, it is quite clear that the case is spurious and I am sure you will be desirous of doing what you can to make its real nature known.

Very truly yours,
G. H. PARKER, M.D.

[The note referred to is as follows: "On the 21st of August, Mrs. Timothy Bradlee, of Trumbull County, Ohio, gave birth to eight children—three girls and five

boys. They are all living, and are healthy but quite small. Mr. Bradlee was married six years ago to Eunice Mowery, who weighed 273 pounds on the day of her marriage. She has given birth to two pairs of twins, and now eight more, making twelve children in six years. Mrs. Bradlee was a triplet, her mother and father being twins, and her grandmother the mother of five pairs of twins."

We are glad, even after this interval of time, to correct so gross a misstatement appearing in this JOURNAL.—EDITOR.]

DIAGNOSIS FIRST, TREATMENT AFTERWARDS.

COLONIAL BUILDING, BOSTON, April 13, 1915.

Mr. Editor: One of my former boy patients whose throat had been operated upon for adenoids, if I remember correctly, but whose ears had not improved therefrom, has recently been infected with the organism which produces pleurisy. Empyema of the thorax has supervened, and the boy, removed to a hospital, has had exsection of a portion of the rib done with "a quart of purulent material" drained away. I do not report this case by proxy, as it were, to hint at the vast amount of practical ignorance remaining in this community, so much as to bring once more to the notice of practicing physicians the name of one of my revered preceptors. Professor Henry Ingersoll Bowditch, who was bold enough to do "thoracentesis" before the days of aseptic surgery and to whom we are indebted for his intuitions regarding appendicitis. How many times have we heard him say, "Gentlemen, I believe you would be justified in opening the abdomen."

"Diagnosis first, treatment afterwards."

EDMUND D. SPEAR, M.D.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE FOUR WEEKS ENDING APR. 10, 1915.

March 13, P. A. Surgeon C. M. George, to Naval Hospital, Newport, R. I.

March 17, Asst. Surgeon C. A. Simpson, resignation accepted to take effect March 18, 1915.

March 18, P. A. Surgeon W. H. Halsey, to Naval Training Station, San Francisco, California.

March 24, Act. Asst. Surgeon M. E. Rose, detached, Navy Yard, Charleston, S. C., to Naval Hospital, Washington, D. C., for treatment.

March 25, P. A. Surgeon, H. W. B. Turner, from *Albany* to Asiatic Station.

March 27, Surgeon A. L. Fauntleroy, detached, Naval Hospital, Washington, D. C., to assistant to Naval Attaché, Paris, France.

March 29, Asst. Surgeon Overton Brooks, commissioned from March 10, 1915.

March 30, Surgeon J. R. Dykes, detached, Naval Recruiting Station, Atlanta, Ga., to wait orders.

March 31, Surgeon J. F. Murphy, to Naval Recruiting Station, Atlanta, Georgia.

P. A. Surgeon H. L. Brown, detached, *Ohio* to *Alabama*.

April 3, P. A. Surgeon G. R. W. French, detached, Naval Hospital, New York, to *Maryland*.

April 5, P. A. Surgeon B. H. Dorsey, detached, Atlantic Reserve Fleet, to Bureau of Medicine and Surgery, Washington, D. C.

April 7, Surgeon W. H. Rennie, detached, Naval Hospital, Boston, Mass., to Naval Hospital, New York, N. Y.

NOTE:—Med. Dir. Michael Drennan, retired, died at Easton, Pa., March 18, 1915.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING APRIL 10, 1915.

CONTRIBUTIONS.

The Cooke County Medical Society, Gainesville, Texas.....	\$ 15.00
The Sedgwick County Medical Society, Wichita, Kansas.....	25.00
Dr. Carl B. Davis, Chicago, Ill.....	10.00
Dr. R. C. Dorr, Batesville, Ark.....	5.00
Anonymous, "J.", New York, N. Y.....	5.00
Dr. George Leonard Schadt, Springfield, Mass.....	5.00
Dr. Mark T. Goldstine, Chicago, Ill.....	10.00
Dr. Lomax Gwathmey, Norfolk, Va.....	25.00
Dr. J. C. Chipman, Sterling, Colo.....	5.00
Miss Grace Hutchison, Canton, N. Y.....	2.25
Dr. Brooke M. Anspach, Philadelphia, Pa.....	5.00
Dr. J. B. Haskins, Chattanooga, Tenn.....	15.00
Dr. Fred W. Phifer, Wheatland, Wyo.....	5.00
Dr. Henry P. Brown, Jr., Philadelphia, Pa.....	10.00
Dr. Floyd W. McRae, Atlanta, Ga.....	10.00
Dr. William L. Rodman, Philadelphia, Pa.....	25.00
Anonymous, "F.", St. Johnsbury, Vt.....	10.00
Dr. Joseph P. Murphy, Brooklyn, N. Y.....	5.00
Dr. Rudolph Matas, New Orleans, La.....	25.00
Dr. Neal N. Wood, First Lieut. M. C., U. S. A., Schofield Barracks, Hawaii.....	5.00
Cumberland County Medical Society, Bridgeton, N. J.....	10.00
Gonzales County Medical Society, Gonzales, Texas	10.00

Receipts for the week ending April 10.....\$ 242.25
Previously reported receipts..... 5896.50

Total receipts.....\$6138.75

Previously reported disbursements:

1625 standard boxes of food @ \$2.20..\$3575.00

1009 standard boxes of food @ \$2.30.. 2320.70

Disbursements for the week ending April 10:

105 standard boxes of food @ \$2.30.. 241.50

Total disbursements.....\$6137.20

Balance \$1.55

One box of surgical instruments sent to The American Commission for Relief in Belgium, through *Surgery, Gynecology and Obstetrics*, without name of donor and without a list of contents.

F. F. SIMPSON, M.D., Treasurer,
7048 Jenkins Arcade Bldg.
Pittsburg, Pa.

NOTICE.

TESTIMONIAL BANQUET TO DR. JACOBI.

A testimonial banquet will be tendered Dr. A. Jacobi by the medical profession, his friends and admirers, under the auspices of the Bronx Hospital and Dispensary, on the occasion of the eighty-fifth anniversary of his birthday, on May 6, at the Hotel Astor, New York.

To give the younger members of the profession an opportunity to participate in the celebration and to come in contact with the venerable Nestor of American medicine, the price per plate has been fixed at three dollars.

The medical men on the Committee of Arrangements are: William J. Robinson, chairman; Arpad G. Gerster, Willy Meyer, S. W. Lambert, J. Brettauer, Francis Huber, A. A. Berg, M. Rebling, S. A. Knopf, H. Edwin Lewis, M. Aronson, Otto Schlirmer, Max Rosenthal, Henry Heiman, A. L. Goodman, A. Hyman-

son, Alex. Goldman, A. A. Brill, A. L. Goldwater, H. Schumer, H. J. Epstein.

Communications should be addressed to William J. Robinson, M.D., 12 Mt. Morris Park West. Reservations for seats should be sent to A. L. Goldwater, M.D., Treasurer, 141 West 121st Street.

SOCIETY NOTICES.

NEW ENGLAND PEDIATRIC SOCIETY.—The thirty-eighth meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, April 30, 1915, at 8.15 P.M.

The following papers will be read:

1. "Can the Speech Present a Sign of Congenital Syphilis?" W. B. Swift, M.D., Boston.
2. "Acute Otitis Media in Childhood; Avoidable Mistakes in Diagnosis, Prevention, Treatment." W. R. P. Emerson, M.D., Boston.
3. "Studies in Bronchial Glands." W. W. Howell, M.D., Boston.
4. "Endocarditis in Children; Its Prophylaxis and Treatment in an Out-Patient Department." R. S. Eustis, M.D., Boston.

Light refreshments will be served after the meeting.

E. M. BUCKINGHAM, M.D., *President*.
RICHARD M. SMITH, M.D., *Secretary*.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The annual meeting will be held at the Boston Medical Library, 8 The Fenway, Saturday, April 24, at 8.15 P.M.

Owing to the illness of Dr. Theobald Smith, his paper previously announced will not be presented.

Dr. Ernest E. Tytzer, Director of the Cancer Commission of Harvard University, will read a paper on "The Present Trend of Tumor Investigation."

Business: Report of the Librarian, Treasurer, etc. Election of officers.

Refreshments after the meeting.

HORACE D. ARNOLD, M.D., *President*.
WALTER C. HOWE, M.D., *Secretary*.

NEW YORK ACADEMY OF MEDICINE, 17 West Forty-third Street. Section on Medicine, Tuesday evening, April 27, at 8.30 o'clock.

ORDERS

- I. a. *Demonstration.*—"The Introduction of Liquids and Gases Into the Duodenum Through the Duodenal Tube and Their recovery from the Rectum."
- b. "Technic of Intestinal Irrigation." (25 min.) I. O. Palefski, M.D. (By invitation.)
- II. "New Method of Diagnosis and Treatment of Esophageal Stenosis." (Lantern slides.) (15 min.) Armistead C. Crump, M.D. (By invitation.)
Discussion by Drs. S. Wachsmann and Harlow Brooks.
- III. "Digitalis Dosage." (Lantern slides.) (15 min.) Cary Eggleston, M.D.
Discussion by Dr. Walter A. Bastedo.
- IV. "Serum Diagnosis of Tuberculosis." (15 min.) E. Castelli, M.D.

T. STUART HART, M.D., *Chairman*,
130 West 59th Street.
NELLIE B. FOSTER, M.D., *Secretary*,
515 Park Avenue.

THE NATIONAL ASSOCIATION FOR THE STUDY OF EPILEPSY AND THE CARE AND TREATMENT OF EPILEPTICS will hold its fourteenth annual meeting at the Hotel Chamberlin, Fortress Monroe, Va., May 10, 1915.

Immediately following are the sessions of the Seventy-first Annual Meeting of the American Medico-Psychological Association.

APPOINTMENTS.

Dr. Rudolph Höber has been appointed professor of physiology at the University of Kiel succeeding *Dr. A. Bethe* who has been translated to the University of Frankfurt.

Harvard Medical School.—At a recent meeting of the overseers of Harvard College, Dr. John Lovett Morse was appointed professor of pediatrics; Dr. Charles Montraville Green, emeritus professor of obstetrics and gynecology; Alexander Quackenboss, assistant professor of ophthalmology; and Dr. Lawrence Joseph Henderson, assistant professor of biological chemistry. Dr. Robert W. Lovett, Dr. Charles L. Scudder and Dr. Frederick T. Lord, members of the administrative board of the Graduate School of Medicine.

RECENT DEATHS.

DR. CHARLES HAMANT HARWOOD who died of pneumonia on April 11, in Boston, was born at Medfield, Mass., in 1864. He received the degree of A.B. from Harvard in 1888 and that of M.D. in 1892. He is survived by his widow and by one son.

DR. B. J. ANDREWS, who died on April 12, at Burlington, Vt., was born in 1850. He received the degree of M.D. in 1885 from the University of Vermont. He had served since 1890 as superintendent of the Mary Fletcher Hospital, Burlington.

DR. LEWIS WALDSTEIN, who died on April 12 in London, was born at New York City in 1853, and practised there for many years as a physician and pathologist. Recently he had been pursuing scientific research in London.

DR. WILLIAM H. RANDLE, who died recently at Philadelphia as the result of a mastoid infection, was born in 1851. He was a member of the first yellow fever commission appointed by President Hayes in 1878.

DR. DONNELL HUGHES, who died of pneumonia on April 8 at Philadelphia, was born in 1857. He was a member of many medical societies, and was widely known as a gynecologist and obstetrician.

DR. FRIEDRICH LOEFFLER, who died recently at Berlin, was born in 1852. With Klebs he was the discoverer in 1884 of the diphtheria bacillus.

DR. ERNEST P. MAGRUDER, of Washington, D. C., who died recently of typhus fever at Belgrade, Serbia, where he was in charge of the American Red Cross unit, was born in 1875. He was professor of clinical surgery at Georgetown University, and was a Fellow of the American College of Surgeons.

BOOKS AND PAMPHLETS RECEIVED.

Consumption, What It Is and What to Do About It, by John B. Hawes, 2d, M.D. Small, Maynard and Company. 1915.

Praktikum der Chirurgie, von Dr. O. Nordmann. I. Teil, Allgemeine Chirurgie. Urban & Schwarzenberg. Berlin, 1915. II. Teil, Spezielle Chirurgie. Urban & Schwarzenberg. Berlin, 1915.

The Boston Medical and Surgical Journal

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Addresses.

DISPENSARIES: A GROWING FACTOR IN CURATIVE AND PREVENTIVE MEDICINE.*

BY S. S. GOLDWATER, M.D., NEW YORK,

Commissioner of Health of New York City.

THIS is a topsy-turvy world just now, and it is in keeping with the prevailing confusion that someone should come from New York to Boston to give advice about dispensaries. We New Yorkers in reality are but humble disciples of the Boston masters who hold unchallenged the leadership in progressive dispensary work.

I have been requested to speak about dispensaries as a growing factor in curative and preventive medicine. There are two ways in which dispensaries are a growing factor in this field: they are reaching a constantly increasing number of individuals; and they are becoming more effective through improvements in method which may be traced to the inspiring example of such institutions as the Boston Dispensary.

You have in your hands a pamphlet stating that in 1900 there were 100 dispensaries in the country, against 574 reported by the United States Census Bureau in 1910, and more than 700 at present. These figures show roughly the rate at which dispensary work is growing. Dispensaries are bound to increase in number, and they tend to do so at an accelerating rate.

* Delivered at the 118th annual meeting of the Boston Dispensary, January 21, 1915.

During the calendar year ending Dec. 31, 1910, 1,953,309 sick persons were treated in institutions in the United States, of which number dispensary patients formed the greater part. In 1910, 180 dispensaries reported receipts of \$1,069,613, while the property in the possession of 119 dispensaries had an estimated value of \$5,720,052.

More and more will there be various kinds of special dispensaries. There is a law in Massachusetts today which requires in every city of 10,000 or more, the establishment of a dispensary for the treatment of persons affected with tuberculosis. Recent reports show that out of fifty-four towns to which that law applies, only thirteen have complied with its provisions. Now, the passage of this law indicates the official acceptance of the belief that every town of 10,000 inhabitants needs a tuberculosis dispensary; and I suppose that before many years pass, the law will be enforced. When that occurs, there will be in Massachusetts three or four times the number of tuberculosis dispensaries that exist today. This, I confidently predict, will happen within the next decade.

Let me say a word about dispensary work in New York. We have in the metropolis a population of between five and six million. More than three million treatments were given in New York dispensaries last year, and the number of consultations is steadily increasing. It is estimated that nearly 1,000,000 different persons look to dispensaries for treatment. There are twenty-five different kinds of dispensaries in the city, and the various departments, taken together, are open for business between 1100 and 1200 hours each day.

In New York there is a certain amount of dispensary regulation. Dispensaries are required to obtain a state license before undertaking to do business, and it is notable that out of the applications that are presented, it seems wise to the State Board of Charities to deny at least a dozen every year.

I hope the time will come when State regulation in this field will be more rigorous, and will be intelligently standardized. The rules of the New York State Board of Charities are comparatively mild. It is required that those who desire a dispensary license shall give proof of a benevolent interest in the work, as attested at least by the possession of and willingness to spend some of the money that is required to carry on the work in a decent way. When the State Board rejects an application, it may signify that in the opinion of the Board, the motives of the applicant are not wholly disinterested; or granting disinterested motives, that the applicant is lacking in means or ability. There is, therefore, in the attitude of the State Board of Charities some faint glimmering of an appreciation of the need of standards—of proper standards, in dispensary work. But among those who satisfy the scrutiny of the Board, who enter the fold and who actually establish dispensaries, there are not a few who, in the opinion of competent and impartial critics, fail to carry on the work in a satisfactory manner.

If the term "dispensaries" is to be liberally interpreted, there are in operation in various parts of New York State a great many dispensaries which are not classified as such by the State Board of Charities, but which, nevertheless, are doing dispensary work. A dispensary might be defined, in the current sense, as a place to which ambulant patients may come for gratuitous or semi-gratuitous examination, advice and treatment. Many places which correspond to this definition receive no recognition from the State Board of Charities.

In certain of the departments of the government of New York City, medical supervision has been established over employees; this has been done in the police, fire and health departments, where employees are examined, advised and treated without charge when ill. This system is supposed to make for individual and departmental efficiency, and to afford some measure of protection to the municipality's pension system.

In the New York Department of Health, where the medical supervision of employees was instituted only last year, we had a different idea in mind. It is not, primarily, *sick* employees who are examined—all employees are to be examined periodically. We want to prevent and to postpone disease; we hope to take as good care of those who are in the service of the Department as the physical director of a college takes or should take of students in the college; but our work is of greater importance than college work, because it embraces the whole period of the employee's working life. Work of this kind

is bound to develop apace among private, as well as among government, employees.

There are in New York City, and elsewhere, mercantile and manufacturing establishments in which there exist emergency treatment rooms. These are industrial "accident" dispensaries. Out of these little dispensaries there will come, in the course of time, a broad movement for safeguarding the health and promoting the welfare of workers. Unless I am much mistaken, there will develop out of these accident rooms a system of periodic physical examinations, so that insidious chronic diseases, whether related or not to occupation, may be discovered at the earliest possible moment and be checked before great and irremediable harm is done.

Another dispensary type which merits attention is the babies' consultation room or milk station. Milk stations are multiplying rapidly. Fifty-seven such stations are conducted by the Department of Health of the city of New York. Here mothers are taught how to care for their children according to the laws of hygiene.

In many localities medical care by lodge doctors is the chosen or established method of dealing with sickness among the relatively poor. I am told that in your own city of North Adams, with a population of 22,000, 8,000 persons are in the care of lodge physicians to whom the members pay an annual stipend for medical care. One might ask whether the lodge doctor is a satisfactory substitute for the dispensary. Where lodge doctors flourish, is it desirable that a dispensary be established?

I have no deep-rooted objection to lodge doctors. Among them are many competent medical men; and between the slipshod service of the poorer kind of dispensary, and the painstaking care of the conscientious lodge doctor, the choice easily lies with the latter. A lodge doctor, however, has this limitation; he is only one man; he can acquire, therefore, only that degree of medical knowledge and skill that it is possible for a man to acquire who is engaged in the general practice of medicine. He is not able to compete in knowledge or in skill with a co-ordinated group of specialized physicians, surgeons, and pathologists, working together in a comprehensive organization. Since, in comparison with such a group, the lodge doctor's capacity is necessarily inferior, we must declare the dispensary to be the better plan for dealing with many ambulatory patients of the poorer kind. That the lodge doctor is paid for his service and the dispensary doctor, as a rule, is unpaid, is an important matter, especially to the doctor; but this is a question to be treated separately on its own merits, and should not influence our decision of the question which is here under consideration.

Beginning next year, New York will require the names of the ingredients of patent medicines to be given on the labels; or else that the names of the ingredients be filed with the Board of Health, which will examine and pass upon the reasonableness of the therapeutic claims which

are made on behalf of the respective preparations. The representative of a large retail drug firm recently told me that the business of his firm in Boston alone amounts to \$3,000,000 a year, largely in patent medicines. Now I am ready to admit that whether a man will run the risk of using a secret remedy, or will prefer the advice of a qualified physician, is partly a question of his intelligence and mental training; but much depends and will always depend on the accessibility, the cost and the quality of medical service. Legitimate medical practice will gain ground in proportion to its quality and its availability. A large number of the comparatively poor now resort to self-medication, lured by unscrupulous and indiscriminating catch-all advertisements; but as people are gradually taught to appreciate the dangers of self-diagnosis and self-medication, the demands on dispensaries will be increased, and their resources, however great, will be found to be inadequate.

Dispensaries are growing in number, in capacity, and in variety, and this growth is stimulated by various factors, some of which have been mentioned. Are dispensaries growing in effectiveness?

We are told that when a man sets up in Germany as a teacher of philosophy, he spends some years at the feet of the great masters, and eventually adopts as his own that system or method of philosophic thought which appeals to him most strongly. Before beginning to teach, he enunciates his theory and method. Before analyzing dispensary work, one ought to have some years of experience, and then adopt a plan—a system of approach. Shall we approach the subject rationally or empirically? If rationally, we shall have to begin with some general principle, and test dispensaries accordingly. Now, following this method, I must begin with the confession that, in principle, I am devoted to the *hospital* dispensary; I think it imperative that a dispensary, in order to reach maximum efficiency, shall be associated with a hospital. But I hesitate to declare my belief in this principle because the Boston Dispensary is not a hospital dispensary (with the exception of its children's department), and yet is recognized as perhaps the most progressive dispensary in the United States today.

However, the hospital dispensary has undeniable advantages. There are open to the dispensary which is attached to a hospital opportunities which are denied to the independent dispensary. If a patient comes to the hospital dispensary and is found to be in need of hospital treatment, he can be admitted to the hospital promptly and directly, and the dispensary staff can follow the case to the wards. Cases can thus be handled in continuity from start to finish, either by one man or by a group of men working in harmony. Moreover, hospital patients can be sent to the dependent dispensary and its social service department for after-care. I need not expand this argument here; but I think it worth

while to say that it is really remarkable that the Boston Dispensary has attained its almost unrivalled position in the dispensary field, in spite of the fact that it is not, except in relation to its children's department (and there only recently), a hospital dispensary. There must be reasons for this. What are some of the reasons?

One reason for the success of the Boston Dispensary is the fact that it has sought to appraise its own work honestly. You have been able to see and willing to admit to yourselves and to others, the things which you were *not* doing, and which, you believed, ought to be done. A dispensary of the average sort makes much of the fact that so many patients come to it each day or each year. The Boston Dispensary, however, was the first, or one of the first, to inquire how many patients failed to return after the first visit, and to ask why such patients did not come back. If I correctly understand the point of view of your Director, whose enthusiasm for the work has meant so much to all of us, the failure of a patient to return for needed treatment is regarded as discreditable to the dispensary. The Boston Dispensary, then, has excelled in patient and illuminating self-analysis.

Moreover, the Boston Dispensary was one of the first dispensaries to recognize the interdependence of medical and social work. It has long been known that there is a connection between environment and disease. The study of occupational diseases was inaugurated at Padua hundreds of years ago. From time immemorial, the clinical history forms used in hospitals almost everywhere, have included a line for the recording of the patient's occupation, but this record was made in routine fashion. It meant absolutely nothing. Oftentimes it was not even an accurate characterization of occupation, and was valueless for any statistical or scientific purpose. You approached these matters in greater earnest; you realized that the patient's social and occupational history was a factor of genuine importance, and perceiving that the dispensary could rarely cure and almost never prevent disease by mere drugging, you proceeded to build up an organization in which medical work and social work have been effectually correlated.

You have sent your nurses and social workers into the homes of your patients, and have thus accomplished much for the patients as individuals. Are you going to stop there? Working with your patient as an individual, you try to alter his habits or to improve his environment so as to favor his recovery from disease, and to facilitate the maintenance of his health subsequently. All of this is well worth doing. But are you willing to stop there? Isn't there something else that cries out to be done? I believe there is.

If a hundred patients should come into your dispensary, presenting some common symptom and giving a history of a single occupation, your social workers would speedily notice the correlation between disease and occupational habit. In

fact, large numbers of patients engaged in a single occupation or exposed to the same environment do not come to the dispensary together, but in such scattered fashion that it is not very easy to discover the common factors in a large group of cases. Nevertheless, in the background there are common environmental conditions which need to be treated in themselves, with a view to disease prevention. May not the dispensary, which in its records of thousands of cases possesses the key to these conditions and can show the harm they do, properly concern itself with environmental treatment, with social conditions, with social reform?

It may seem a far cry from dispensary work to the single tax, yet the Surgeon-General of the United States Army *advocates the single tax on land as a health measure*. Col. Gorgas believes that an important cause of disease among the poor is overcrowding in habitations; it is his theory that the single tax would lessen congestion, would distribute the people over the land, and would thus minimize disease. You see he does not deal with disease in the orthodox way; he goes after what he believes to be the underlying cause and combines political economy and constructive statesmanship with sanitation. We may or we may not agree with his political economy or with his theory of taxation; we cannot fail to commend his plan of bringing within the field of sanitary observation concealed factors which he believes to have an indirect but a real relation to disease; and we must admit that such broad vision as this makes even the admirable and effective social work of the Boston Dispensary look very small.

The Boston Dispensary has done more clinical team work than the average dispensary; it has linked its work with that of the medical schools; it has persistently and effectively associated the medical and the social worker. Let me refer briefly to each of these things.

"Clinical team work" is a phrase that is in everyone's mouth nowadays. Where and to what extent is clinical team work demanded? Organized or institutional medicine, the medical practice of associated specialists, tends to supplant the private doctor, because where a man works alone the advantages of team work are lacking. The growing complexity of medicine as science and as art, calls constantly for more team work.

The most complete expression of medical team work is found in the large general hospital; if properly managed, such a hospital commands the best talent and the best equipment in the right proportions and in the most effective relations. One large and complete general hospital is better than several small hospitals, because the very small hospital cannot have a first class laboratory organization, nor a clinical organization full enough to permit clinical team work to be developed in the highest degree. In the general hospital, and in the general dispensary in

which the clinical departments are organically related, there is clinical team work in its most admirable form. In most of our cities, the benefits of this service are available today for the very poor and for the rich.

Unfortunately, the facilities of general hospitals and dispensaries are not widely available at present for the patient who is just above the poverty line; yet such patients form the most numerous class in the community. Should not an effort be made to place efficient medical organizations within the reach of this class? Forty New York dispensaries were recently invited to enter this field, and all declined. The Boston Dispensary, however, has made a beginning with its self-supported evening clinics.

The organization of clinics for self-supporting working people is just now especially important because of impending social legislation. Such organization will facilitate the introduction of state-regulated sickness insurance, and will add to the value of such insurance when established. Great Britain launched its insurance scheme before adequate preparation was made. The great voluntary hospitals and out-patient departments of London, where much high-grade medical work is done, but done gratuitously, were not incorporated in the government's plan; the medical care of the insured was left to district or panel doctors, with their necessarily limited knowledge and inferior facilities for diagnosis and treatment. A medical organization which is fathered by the government should be on a higher plane of efficiency; and in order to insure the best results, the principles of team work must be utilized.

Now that this country is moving toward sickness insurance, I hope that we shall be foresighted enough to utilize in whatever plan we may adopt, the available resources of our existing medical institutions, both hospitals and dispensaries; without this, we cannot provide medical service of the best kind. Of course the present facilities will have to be greatly increased; and since the medical work will no longer be charitable work, but part of a scheme of social insurance, adequate compensation will have to be provided for the doctors.

You ought to have in Boston, for the study of these problems, a strong organization representing all of the respectable dispensary elements. It is of vital importance that the dispensaries get together and agree upon proper working methods. Such an organization would find, I dare say, that much more money should be invested in dispensaries. It would be a splendid thing if you could establish a central fund, to be distributed among dispensaries in proportion to their needed service. A central organization with cash resources could do much to promote the standardization of dispensaries upon sound principles. This is a task which in New York may be undertaken in the near future by the Hospital Saturday and Sunday Association,

whose trustees have the matter under advisement.

I should like to say a word in relation to teaching. The dispensary has a well recognized place in medical education. Time was when medical students were brought into clinics chiefly for the study of normal physical signs. There may have been some benefit to the students in this, for the physician must familiarize himself with normal signs before he can intelligently differentiate the signs of disease. But the student in the older days was interested in the patient's body—not in the patient. The student who enters the dispensary today finds himself in a different atmosphere; in a dispensary like yours, the student cannot fail to have his attention directed to the patient's individual character and needs, and to the social aspects of disease as well. With your aid, the student acquires a knowledge not only of curative medicine, but of some of the most important aspects of preventive medicine. As a teaching institution, therefore, the dispensary has distinctly improved.

Certain types of dispensaries are essentially teaching institutions. The so-called milk stations are mothers' schools, where infant hygiene is taught. Besides instructing mothers in the care of their children, milk stations should be used as centers of inquiry for the purpose of ascertaining and making public social facts that have a bearing on infant mortality. A recent survey of a district in New York showed that 45% of the fathers of the registered children were not regularly employed, and that 65% of the mothers worked outside of the home to help support the family. Under such circumstances it is not surprising that infant mortality in this district reaches the appalling figure of 340 per thousand—more than three times the average for the city as a whole. May we not look to general dispensaries as well as to milk stations and tuberculosis clinics, to make it one of their principal objects to disclose such facts as these? Under the influence of such work, dispensaries will soon perceive the desirability of close co-operation.

In New York certain conditions are characteristic of special sections. The various racial groups often settle in localities which they make peculiarly their own. In many cities there are districts where nearly everybody is engaged in one industry. Where such conditions exist, social studies would be facilitated by a comprehensive municipal organization of dispensaries on the district plan. Obviously the existence of independent dispensaries presents obstacles to a co-ordinated district plan. For various reasons, voluntary institutions are unwilling to agree to a district system; for instance, a dispensary may fear that its appeal for contributions would carry less weight, if patients were accepted from a limited district only, instead of being permitted to come from anywhere. This particular fear, by the way, has been shown to be ground-

less; but the idea persists; and the voluntary dispensaries continue apart, handicapped themselves by their separation, handicapping each other and the municipal dispensaries with which they decline to associate.

From the standpoint of social organization rather than that of individual service, there are certain advantages in the public as against the private management of dispensaries. Without doubt, the dispensary work of a city should be broadly planned, and this is most readily done when the work is regarded as a municipal or public function. But the United States is far from ready to discard voluntary hospitals and dispensaries. Present plans, therefore, should aim at the co-ordination of voluntary and municipal dispensaries; the two groups should work together in a serious effort to meet the needs of the hour: each will profit by contact with the other, but the community will profit by the partnership most of all.

Prof. Münsterberg recently said that social unrest could be done away with, if the problem were handled by psychologists; that what the discontented worker needs is not more of this world's goods, but a different view-point, which the psychologist could easily implant. Münsterberg would strive to make the discontented factory hand who receives \$5 or \$6 a week, realize that he is part of the great social machine that is working out the evolution of the race. What the poor need, in other words, according to Münsterberg, is not more bread, better clothing or improved housing, but an inspiring social philosophy. That happiness is a subjective, not an objective, state, may be admitted; but no social philosophy, however altruistic and optimistic, will produce universal contentment.

The dispensary worker needs a social philosophy, not to make him happier, but to accentuate his earnestness. He should sympathize with the patient as an individual; but also he should see the patient as a part of the social body, and with this vision before him, he is certain to redouble his efforts, and to direct them into more useful channels. In proportion to the clearness of his social vision, will the emphasis in his work be placed on preventive rather than curative medicine.

The broad aim of preventive medicine is to make normal living possible for everybody. If conditions of housing, work, food or recreation are unfavorable to the attainment of this ideal, the dispensary must uncover the facts, denounce the evil, and help to secure the application of the remedy. No other institution is more advantageously placed for purposes of social observation; hence it is the peculiar duty of the dispensary to participate in constructive social reform. Upon suitable occasion, the dispensary must not hesitate to sound the social fire alarm: society will heed the warning if the note is sounded clearly.

CARE OF PROSPECTIVE MOTHERS.*

BY ARTHUR B. EMMONS, 2d, M.D., BOSTON.

OUR new Health Commissioner of Massachusetts, Dr. McLaughlin, is pointing out that a health department to be effective must be efficient in all its parts. These parts, he says, include not only the State Department and local boards, but the physicians, the nurses, and the people themselves. Public health must begin with the individual and the family. Their teachers are the nurses who must depend on the doctors for their knowledge of hygiene. It is in your capacity of family health officer that I wish to address you doctors to-night.

My subject, "Care of Prospective Mothers," is a part of preventive medicine. Pregnancy care, intelligently and systematically given, I shall try to show, leads to better obstetrics, and thus adds to the safety of child-bearing, which is a most vital branch of public health. Is there need of improvement in this branch of public health? Or is it on a satisfactory basis now, not only among our well-to-do patients, but among the poorer people? I quote from some of our highest authorities in this country, who go to the root of the matter, the teaching of obstetrics in the medical schools throughout this country.

Dr. J. Whitredge Williams, professor of obstetrics at the Johns-Hopkins Hospital, through a questionnaire sent to the professors of obstetrics throughout the country, indicates the condition of affairs in part as follows:¹

I. Many of the professors are poorly prepared for their duties and have little conception of the obligations of a professorship. Some admit that they are not competent to perform the major obstetric operations, and consequently can be expected to do little more than train man-midwives.

III. Many of them admit that their students are not prepared to practice obstetrics upon graduation, nor do they learn to do so later.

V. Reform is urgently needed, and can be accomplished more speedily by radical improvement in medical education than by attempting the almost impossible task of improving midwives.

VI, c. Recognition by medical faculties and hospitals that obstetrics is one of the fundamental branches of medicine, and that the obstetrician should not be merely a man-midwife but a scientifically trained man with a broad grasp of the subject.

d. 5. Education of the general practitioner that he is competent only to conduct normal cases of labor, and that major obstetrics is major surgery, and should be undertaken only by specially trained men in control of abundant hospital facilities.

e. Education of the laity that poorly trained doctors are dangerous, that most of the ills of women result from poor obstetrics, and that poor women in fairly well conducted free hospitals usually receive better care than well-to-do women in their own homes. Teach that the *remedy lies in their hands*, and that competent obstetricians will be forthcoming as soon as they are demanded.

f. Urge the extension of obstetric charities—free hospitals and out-patient services for the poor, and proper semi-charity hospital accommodations for those in moderate circumstances.

g. Greater development of visiting obstetric nurses, and of helpers trained to work under them.

h. Gradual abolition of midwives in large cities and their replacement by obstetric charities. If midwives are to be educated, see that it is done in a broad sense and not in a makeshift way. Even then disappointment will probably follow.

This all comes from the professors themselves. Hear what another professor says of present conditions throughout the country: "Dr. De-Lee" of Chicago in discussion said: 'Medical education in the department of obstetrics in the United States is below the standard maintained by the teaching of other departments, and continues to cry loudly for improvement. There is no question but that the medical men in the United States are not prepared to cope with obstetric emergencies. I feel that the statement cannot be controverted that there *die* in the United States, as direct and indirect results of childbirth, *20,000 women annually*. If we think what a furor would be raised in the community if yellow fever were to take off 20,000 human beings in one year, and on the other hand contemplate the equanimity with which the public views this annual loss of 20,000 mothers, the comparison is striking.

"We cannot measure the amount of *suffering and invalidism* entailed by bad obstetric practice, but to one who views the procession of maimed and sick women that enter our hospitals, seeking relief from the diseases and accidents of childbirth, it is heart rending.

"*Hundreds of thousands* of babies are permanently crippled, either mentally or physically, as the result of improper obstetric management at their births, and in a goodly proportion the infant becomes *blind* as the result of carelessness.

"What is the cause of all these miserable conditions? There is but one answer. *The standard of obstetric teaching* and obstetric practice in the United States is *too low*. The public has no respect for the obstetrician. He is looked down upon, not alone by the people, but by the doctors themselves. The people will not pay the obstetrician properly for his arduous work. Obstetrics is the hardest branch of medi-

* Read before the Cambridge Medical Improvement Society, January 25, 1915.

cine to practice. It robs the doctor of his sleep, destroys his office hours, interferes with all his engagements, and besides that, the actual work is exceedingly laborious."

Another aspect of the question was expressed by Dr. S. Josephine Baker,³ director of Child Hygiene, Department of Health, New York. She says in part: "No amount of legal enactment for mere control after licensing and no amount of mere supervision, however faithfully carried out, will ever solve the midwife problem. If we are to meet and master the situation,—and the need of such a course is imperative—we must insist that every midwife receive an adequate professional training before she is allowed to practise, and we must provide the proper schools for this purpose."

Dr. Baker was one of those chiefly interested in establishing the Midwife School at Bellevue Hospital. She had the direct control of the large number of the midwives in New York City in 1911, 1344 permits, 51,996 births (40%) conducted by them. She has done a wonderful piece of work in bringing them to a higher level of efficiency and safety.

This, undoubtedly, is a temporary solution of the immediate deplorable situation in New York City where the midwives care for at least 50,000 births annually. The midwife system however must at bottom rest on the medical profession for the care of all abnormal cases. The cases treated by the midwives are lost to science and for teaching, and a second standard on a different level is established. An important branch of surgery is removed from the medical profession. *Is the medical profession ready to delegate normal obstetrics to the midwife?* Or are physicians ready to take the trouble, care, and expense of some other means to care, at an equal or nearly equal price, for these women?

From these statements it seems fair to conclude that the present system of caring for poor women is being shown to have failed to give reasonably safe care. If the medical profession does not face the difficulty and overcome it, various social forces are likely to demand an improvement by some means.

All this goes to show a general dissatisfaction, backed by statistics, of our present methods of caring for prospective and parturient mothers. How is it possible to better these conditions in our own city? I am here tonight to present one scheme—the *pregnancy clinic*. What does this mean? It means conserving the health and strength of the prospective mother; it means foresight and forehandedness during pregnancy. A common practice among the unenlightened or improvident, who blindly hope all is well, is to call at the last minute a doctor or midwife to meet unprepared any emergency. Pregnancy care substitutes for this haphazard method the following procedure:

The doctor sees the prospective mother as soon as she suspects that pregnancy has oc-

curred. He learns the history of past illnesses and childbirths and her present symptoms. He makes a careful physical examination of the teeth, lungs, heart, and blood pressure, of the abdomen with estimate of the period of pregnancy, the size and position of the child, if near term, the rate and location of its heart, and careful measurement of the mother's bones to make sure no obstruction to birth is present. Swelling of the feet and legs is noted, and a urinary test of the kidney function is made. The facts thus gathered form a basis on which to predict the outcome.

Such prediction is the highest point of obstetric science, and to be reliable, must be made by a physician familiar with the experience of the past. Our medical fathers classified millions of cases and studied thousands of abnormalities. The physician must be prepared to use this knowledge. The judgment of such a man must be balanced by the experience of successfully meeting the many problems and emergencies of obstetrics. How does this help the mother? Here is one example: Professor Kerr of Glasgow, a few years ago, in the Maternity Hospital of that city, by using more exact methods, such as careful study of the pelvis and the size of the child's head, was able to reduce the number of forceps operations, where the pelvis was mildly contracted, from 91 to 47%, thereby reducing the infant mortality in such case from 18 to 2%, and the infant morbidity from 30 to 4%. Similar results have been obtained in this country by Williams at the Johns Hopkins Hospital. Are such results obtained in private practice? I leave it to you doctors to judge whether such study of *private cases* is being made today. Is it possible in the life of a busy general practitioner? With the usual fees paid for obstetric care, can he afford to spend the time for such careful study?

In many cases this preliminary study and care may seem a needless precaution. There are, however, many dangers and discomforts which may by early recognition be avoided. The most important of these are:

1. Contracted pelvis.
2. Difficult labor from disproportion of pelvis and child.
3. The toxemias of pregnancy.
4. Extra-uterine pregnancy.
5. Placenta previa.
6. Pyelitis.
7. Septic conditions, including gonorrhea.
8. Syphilis.
9. Tumors.
10. Intercurrent disease, as heart troubles, tuberculosis and malnutrition.

With the outcome intelligently predicted, the mother is confidently reassured and instructed in hygiene, and the nurse is put in charge of the case, with the doctor as consultant to guard against any abnormal condition which may yet develop during pregnancy. The nurse visits the

home at intervals of not over ten days. At the first few visits home conditions are seen and instruction given for personal hygiene in diet, baths, clothing, fresh air, sleep, and exercise, i.e. how best to conserve her strength for the good health of the baby and for the physical strain of labor and nursing. Later, necessary preparations for the coming of the baby are assured, with every precaution against infection to mother and baby. At all visits the mental and physical condition of the mother is critically observed, a urinary test is made, and the coöperation of the whole family is solicited. The dangerous advice of the gossiping neighbor is less likely to be followed. Experience shows that the tactful nurse is welcome in the home and her opportunity for good is great. It would be difficult to exaggerate the value of these visits, made by an efficient, sympathetic nurse to certain prospective mothers. Seldom will a nurse's personality tell more than in some of these friendly visits. Her social service training will often be invaluable in meeting the situation.

The problems of maternity and its relations with society are enormous. Scarcely a pregnant patient comes to our clinics today who is not worried by some social difficulty added to her physical burden. Such problems as illegitimacy, drunkenness, and desertion are frequent, while improvidence, unemployment, and a too small budget are the usual state. The pregnancy clinic attempts to meet these difficulties through the organization and coöperation of the nurses and social workers. Is the general practitioner prepared and able to do this?

To sum up, pregnancy care is *preventive medicine as applied to obstetrics*, i.e. the utilization of every known means to keep the prospective mother well and strong, to foresee and forestall dangers, intelligently to provide for confinement. This may be merely proper care in the home at a minimum expense for the normal case, or the best skill available in a hospital for averting tragedy. Preventive obstetrics thus includes a wide knowledge of the *anatomy, physiology, psychology, and sociology* of the patient.

To obtain the greatest efficiency in pregnancy care there must be coöperation of the doctors, nurses, milk stations, hospitals, boards of health, and the patients and their families. Before turning to the immediate subject of the local situation, I wish to call your attention to a piece of work which has resulted in the lowest known infant mortality, and "*infant mortality*" has been said to be the most sensitive index of the civilization of any locality. This *most civilized place* is not in Europe or America, but in New Zealand.⁴ While Boston has an infant death-rate of over one hundred, and Massachusetts of 130 and over, New Zealand has a rate of fifty-one, and the city of Dunedin a rate of thirty-eight.

This has been accomplished in New Zealand primarily through the initiative of Dr. F. Truby

King by means of the New Zealand Society and its public health nurses. Dr. King considers that pure milk represents a small part of the improvement which has been accomplished, while the *teaching of mothers* prenatally, postnatally, and later through the milk station, represents a far larger part in the improvement. He has made an *educational campaign*.

Improvement may also be shown to a less extent much closer home. In the city of New York⁵ an experiment has been carried on by the New York Milk Committee, supported by private subscription. The two diagrams show, first, the need of pregnancy care (a still-birth rate in 1910 of 48.1 per 1000 births, an infant mortality under one month of 40.6 per 1000 live births), and second, the result of a considerable experiment of reducing infant mortality by pregnancy care, including the supervision in less than 2 years of 2644 mothers. (This resulted in a reduction of the still-births of 11.2 per 1000, and of the rate under one month of 10.8 per 1000 live births.)

I wish here to describe an experiment carried on in Boston.*

From April, 1909, a committee of the Women's Municipal League of Boston, under the leadership of Mrs. William L. Putnam, has in five years given pregnancy nursing care to 1512 women in Boston. The results have been truly remarkable. No death occurred among these mothers during pregnancy, and but nine maternal deaths at confinement in the hospitals, —0.6% in the full five years.

In the last three and one-half years no miscarriages.

Impending eclampsia: 60 the first year, 2 the last year.

Only four cases of real eclampsia have developed.

Stillbirths, including premature births, were for two years less than half that of the rest of Boston.

Infant deaths: Total number under one month of age, 43, or 2.8%, while Boston's rate in 1913 was 4.3%.

Percentage of breast-fed babies, 84.7%; percentage of mixed feeding, 4.5%; total, 89.2%.

After this five-year experiment the committee rests satisfied that pregnancy care by the nurse visiting in the home at intervals of not-over ten days has demonstrated its efficiency in relieving suffering and preventing danger and disease to the mother, and rendering maternal nursing more successful, thereby reducing infant mortality.

Proceeding from this convincing demonstration, the committee, backed by an advisory board of experienced obstetricians, has undertaken the next step. That is the more difficult problem of medical supervision during pregnancy and adequate care at childbirth. Two dispensary preg-

* Experiment of the Committee on Infant Social Service, now changed to Committee on Pregnancy and Obstetric Care of the Women's Municipal League of Boston.

nancy clinics are under the committee's supervision, one at the Peter Bent Brigham Hospital, the other at the Maverick Dispensary in East Boston.

These clinics are under the direct supervision of an obstetrician. They use as a basis to work with, not the trained or untrained midwife, but the young obstetricians who are graduates of some maternity hospital, and the nurses of the Instructive District Nursing Association. For such an organization semi-free and free hospital beds must be available. We know that at any time during pregnancy the case may demand major surgery. The work is gradually being standardized. For example: No patient before confinement may be visited by a nurse more than twice unless she has been examined by a private physician or by the obstetrician at the clinic. Thus the medical responsibility is carried by the doctor, which the committee feels is essential for the best results. Such a system is designed to use the ever increasing medical and nursing knowledge available in any community and to stimulate this to its highest efficiency. Results are encouraging, but not yet sufficiently numerous to warrant generalization.

THE SITUATION IN CAMBRIDGE.

Cambridge is to be congratulated on its excellent district nursing association. The directors of this association have recognized that a nurse is needed in the home at childbirth fully as much as at any other time. Few district nursing associations have succeeded in overcoming the difficulties involved in caring for obstetric cases in their homes. The irregularity of hours, and frequently the length of time required to care for such cases has made the expense so burdensome that other district nursing associations have shrunk from the task. I am told that in Cambridge every emergency has so far been met. It is recorded that during one rainfall of babies the whole nursing staff was used on obstetric cases; but it is their just pride that they cared for every case.

I am also informed that the physicians in Cambridge, in spite of poor pay and the other burdens of obstetric care, have generously responded to the call of the rich and poor alike, and thus have continued to meet the traditions of the medical profession, and I have no doubt this has entailed a considerable burden on many physicians, for obstetrics today among the poor is not a profitable business.

To demand or even expect more time, study, and care from these physicians with no extra compensation would hardly seem just and right, and yet there is a considerable number of cases. I am informed, where large benefit to all concerned might result if a pregnancy clinic were established. To give, perhaps, the worst possible example, I cite the following case:⁶ The Conviction of a Midwife; Commonwealth vs. Connor.

Catherine Connor was convicted on July 28th in charges connected with the blindness of a baby. Two mothers, one of them the mother of the blind baby, testified that Mrs. Connor had attended them in childbirth. In so doing she had practised obstetrics, a recognized branch of medicine, and not being a registered physician she had thus violated the Medical Practice Act . . . Mrs. Connor had seen the baby's eyes red and swollen and showing an unnatural discharge. Having "seen many such cases before" she provided a brown medicine which she dropped into the baby's eyes, thus again practicing medicine without a license. She also failed to report the birth until legal procedures had been begun, thus violating the Registration Law. She failed to report the symptoms of ophthalmia neonatorum, thus again violating the law. The court found her guilty. On request of the prosecution, and because of the defendant's extreme age, 84, sentence was suspended, on the understanding, however, that the defendant would absolutely give up practice.

The blame for such conditions cannot be laid at the feet of any responsible person, least of all to the medical profession, which has always been ready to care for such cases. Society must, however, recognize that such conditions exist, and it is the hope of some of us at least that the presence of an organized pregnancy clinic in the community may reduce the likelihood of such deplorable happenings. It is our hope that the general level of obstetric care, particularly in the poorer districts, may be raised to what could be fairly considered a service of reasonable safety to those of limited means. Such a project has, therefore, been prospected.

It has been suggested that a clinic be established, holding a weekly conference at the Cambridge Neighborhood House, that the Committee of the Women's Municipal League, whose object is to develop such work about Greater Boston and to stimulate it elsewhere, be responsible for the management, together with the District Nursing Association, whose nurses will carry the work into the homes after being present at the weekly conference, and with the aid of the social forces of the Neighborhood House. Such a project seems to me most favorable for carrying on a work of this character, designed for the good of the community and directed particularly to the better care of prospective mothers. Such a project, however, must have support. It is the hope of those interested that this medical society will give us moral and professional backing. Its very name, the Cambridge Medical Improvement Society, encourages us to this conviction.

Such a project must also have financial assistance. To establish a service which requires considerably more time of trained workers, where already financial stress has reduced the compensation below a profitable basis, means that such a service must be run at a considerable loss.

Any new project involving more expense to those of limited means, even though it may bring better service, is bound to be a losing business. Those interested already recognize this feature and are making preparations to appeal to the community, especially to the women of the community, for at least partial support. The plan is not to give such service free, but to urge all patients to pay the cost, probably from \$10 to \$15 for complete nursing and medical care, or perhaps \$5 where the patient has her own private physician. The obstetrician's time at the clinic will be given free by the committee of the Women's Municipal League. Our experience in East Boston during the first year of that clinic, where patients were asked to pay \$10.00, was that we received an average of a little over \$7.00. This is probably a greater proportion of the worth of such service than is paid by the students at Harvard College toward their educational advantages. Thus we do not consider that we are in any way pauperizing the community.

I began by saying that I wished to speak to you doctors tonight in your capacity of public health officers, and I believe that this project will appeal to the medical profession in this special capacity. It is easy to prove that the occupation of being an infant in Boston is more dangerous today than that of being a soldier in the European War. It has also been shown that 42% of this infant mortality takes place within the first month of life, which represents the large factor that prenatal and birth conditions play in this high infant mortality.

Two views of meeting the problem of reducing this early infant mortality are being put on trial throughout the country. First, the education, licensing, supervision, control, and re-education of the midwife to handle normal obstetrics. The other, to improve the teaching of obstetrics in the medical schools and to develop the maternity service to the community, *i.e.* lying-in hospitals, out-patient and pregnancy clinics. This scheme preserves to the medical profession the care of women at this critical period of their lives. The midwife program is probably the cheaper. The pregnancy clinic, working through the doctors and nurses, retains for the medical profession the care of such cases. In backing such a scheme as has been outlined here, you thereby help to preserve to the medical profession its privilege of rendering intelligent aid to civilized woman at her most critical time of life. I have complete confidence that neither time, effort, nor money will induce you to give up such a privilege.

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Original Articles.

PERFORATION OF THE STOMACH AND INTESTINE BY FOREIGN BODIES THAT HAVE BEEN SWALLOWED.*

BY F. S. WATSON, M.D., BOSTON.

I HAVE selected the subject of this communication to present to you this evening, partly because I happen to have had six cases of the condition in my care, partly because some of their features interested me, and partly because I did not recall its having been brought before any of our medical associations here for discussion.

In order to bring the communication within the limits appropriate for the occasion, I have not attempted to treat the subject exhaustively and have confined my exposition of it to a sketch and to the mention of some of its more essential features. I have also restricted it to perforations of the stomach and the intestine, omitting cases of perforation of the appendix or Meckel's diverticulum, of which all of us have doubtless had a good many. I will briefly refer to my own series of six cases first, and will conclude by calling attention to some of the features of the subject in general.

The perforating bodies in my own series of cases were as follows: 1. A wooden toothpick. 2. A needle such as is used in sewing canvas. 3. A fish bone. 4. A bristle. 5. A flat, thin bit of bone with sharp edges. 6. A body of unknown nature, having the shape of a bit of lead pencil, and about an inch and a half in length.

Four of these bodies I have brought with me to show to you; the other two, I regret, were lost.

Sites of Perforation. The sites of the perforations were located in three of the cases. In these they were: In the upper part of the jejunum, in the small intestine near the ileo-cecal valve, in the transverse colon midway in its course. In two of the remaining three they were presumably high up in the intestinal tract or in the stomach, and in one of them in the small intestine near the ileo-cecal valve.

Pathological Processes Produced by the Perforations and Foreign Bodies. In all but one of the cases the pathological conditions discovered were those that are seen in circumscribed peritoneal infection and inflammation.

In three of them intra-abdominal abscesses had been formed. In one of these the abscess had approached the surface of the abdomen, and would doubtless have been spontaneously evacuated there had not the operation been done.

In the second example of intra-abdominal abscess, that in which the jejunum was perforated, the conditions were of a more acute and severe grade of local peritoneal infection. The perforation in the bowel was large enough to admit the tip of the little finger, and fecal extravasation

* Read at the meeting of The Boston Surgical Society, March 1, 1915.

was taking place from it into the cavity of the abscess. The process was but five days old in this instance.

In the two cases in which the perforations were in the small intestine near the ileo-cecal valve, the areas around the sites of the perforations were well walled off from the peritoneal cavity by adhesive processes. An illustration of the condition seen in a good many of these cases was afforded by the toothpick case. Here the foreign body had evidently but very recently perforated the bowel, nevertheless, the immediately adjacent area was walled off by adhesions that had been formed before the perforation actually took place.

In the transverse colon perforation and in that caused by the bristle the conditions presented were somewhat unusual. In the former there was a tumor about the size of the palm of my hand, projecting above the surface of the abdomen somewhat, at the level of the umbilicus and extending downward toward the upper margin of the symphysis pubis in less conspicuous form.

This tumor represented an enormously thickened portion of the left rectus abdominalis muscle which at its thickest part must have measured two inches in depth. Immediately beneath this was a mass formed by the thickened omentum which was intimately attached to the parietal peritoneum overlying it, and which extended upward and downward. Beneath and below this mass was a second one, the lower border of which reached the level of the brim of the pelvis and extended toward the spine posteriorly. This mass was an intra-abdominal abscess containing about twelve ounces of pus and the foreign body. The three parts just described were welded into one mass which gave the impression of a large intra-abdominal solid tumor.

The perforation was not seen at the time of the operation, but was revealed by the autopsy, at which it was found to be in the transverse colon. Fecal extravasation had been prevented by the firm glueing down, above and around it, of the omentum.

In the bristle case the condition was seen in the form of a tumor upon the external surface of the left upper quadrant of the abdomen, having the size of my closed fist and composed of chronic inflammatory tissue. The base was intimately united with the left rectus abdominalis muscle.

Symptoms and Diagnosis. One of the most interesting points connected with these cases for me personally, in so far as the diagnosis was concerned, was my failure to make a correct diagnosis in any of the cases; at least this was true with regard to the etiological factor in them. The reason for these errors was that no information was vouchsafed by any of the patients of their having swallowed a foreign body. In two of the cases I knew, it is true, that I had to deal with intra-abdominal abscesses, but their origin was entirely obscure. In two in which the small intestine was perforated near the ileo-cecal valve, the symptoms were absolutely typical of attacks

of subacute appendicitis, and I believed them to be such. In the perforation of the jejunum, the picture presented was that of an acute and severe peritonitis, and despite the absence of previous symptoms I was inclined to believe it to be a case of perforating ulcer of the duodenum. In the fish bone perforation with the large intra-abdominal abscess, there had been but very moderate intra-abdominal or constitutional symptoms and the gastro-intestinal function was but slightly disturbed. Here I knew that there was an intra-abdominal abscess, but whence it came I did not know. In the patient with the transverse colon perforation the symptoms had been mild for the first fortnight, but had increased in gravity during the ten or twelve days preceding his entrance to the hospital. He had lost strength rapidly during that period and was very critically ill when I first saw him. Constipation had been present for four days. His complexion was of grayish color. Tongue heavily coated. Pulse weak and rapid. Abdomen distended, and muscular rigidity was evident. Leucocytosis of 7000. Temperature, 99.8° F. The physical abdominal conditions found have already been described.

In the bristle case there was an entire absence of intra-abdominal and of constitutional conditions. The patient had noted merely the presence of a tumor in the upper left quadrant of the abdomen which had painlessly increased in size until it was as large as my closed fist. This tumor was closely attached at its base to the left rectus abdominalis muscle and had the feel and general history of a sarcoma of the abdominal wall. It was thus diagnosticated by two of my colleagues at the Massachusetts General Hospital, by one of them at the Boston City Hospital and by myself.

Its duration was two months.

Treatment. The treatment in three of the cases consisted in opening, cleansing the intra-abdominal abscesses and removing the foreign bodies. In the jejunal perforation the opening in the gut was closed by suture.

In the two cases simulating appendicitis, the foreign bodies were removed. In the one in which the toothpick had made a perforation of the gut the opening was closed with one suture. The appendicees were taken out as a matter of routine. The abdominal wounds were closed tight without drainage.

In the bristle case I made an incision into the tumor in order to remove a small bit to send to the pathologist for a rapid diagnosis, and by good chance exposed in so doing the tip of the bristle you have seen tonight. Enlarging the incision I traced it to and through the abdominal wall. It was removed, the mass of chronic inflammatory tissue was cut off at the base and the wound closed.

Remarks. It is impossible to determine the proportion of cases in which perforation by foreign bodies that have been swallowed occurs, relative to the whole number of those persons who

have taken them into the stomach and intestine. This, because the number of those through whose gastro-intestinal tract they pass without injury and whose cases, therefore, are not published, is doubtless far in excess of those whose cases have been reported. In the reported cases of foreign bodies ingested, perforation has occurred in about 8.0%.

Foreign bodies remain, as a rule, longer in the stomach than in the intestine, so too is the stomach more often the seat in which foreign bodies are found to be present than the intestine.

The longer the foreign body is, the more likely it is to be detained in the stomach. The shorter ones usually pass into the intestine.

The character and the number of foreign bodies that have been passed through the whole length of the gastro-intestinal tract without inflicting serious injury upon it, is extraordinary. Among them are recorded the following: Pocket knives, hairpins, safety pins (open and closed), nails of different sizes, bits of glass, table knives, spoons and forks, fish hooks, and a large variety of substances such as bones, bits of lead solder and of enamel from tin and other sorts of vegetable cans.

Per contra, far less formidable foreign bodies have caused perforations of the stomach or intestine some of which have resulted fatally.

One point worthy of being noted is: that perforation has taken place in the bowel in a few instances after the foreign body has passed through and out of the gastro-intestinal tract, seemingly without having inflicted any injury. In these cases the subsequent perforations have been produced as the result of an ulcerative process set up by the foreign body during its stay in the bowel, some point in which has thereby become weakened and finally given way.

One of the factors determining the detention of foreign bodies in the intestine and, in a certain number of cases, perforation, is the existence of narrowings, or constrictions in it. The more frequent causes of these are the results of tuberculous disease, syphilis, and kinks of the bowel.

The most frequent sites of perforation of the intestine are in or near the right iliac fossa. We have all had a greater or less number of cases in which foreign bodies have perforated the appendix, of course. In a considerable number perforations take place in the cecum and in the small intestine near the ileo-cecal valve. Another favorite site of lodgment and sometimes of perforation, is near the anus. In a few instances of this character fatal phlegmon around the rectum has been produced following perforation at this point. I do not know the relative number of perforations of the stomach as compared with those of the intestine, but it is my impression that they are fewer in the former and that the larger number of these have been made by knives and other sharp bodies that have been ingested.

Sometimes the foreign body has made its way through the intestine and into the vagina or bladder. One interesting example of the latter condition is reported by the English surgeon Mr. Reginald Harrison.

The patient came to the hospital in this instance because of a stone in the bladder. On doing a lithotomy operation Mr. Harrison withdrew a calculus of unusual shape. It was of long oval form. Its nucleus was found to be the stem of a pipe. The patient on being questioned declared that he had swallowed the mouthpiece of his pipe during a drunken sleep. He had experienced no trouble from it and did not associate his vesical symptoms with the incident. In this case the communicating opening between the bowel and the bladder had closed spontaneously. In other examples of this condition and of the cases in which the foreign body has been spontaneously discharged on the surface of the abdomen, fecal fistula has resulted and required operation in order to close it.

An interesting and important feature of the cases of perforation of the stomach or intestine by foreign bodies that have been swallowed, is that in a large number of them the area of the peritoneum immediately about the site of the perforation is already walled off by an adhesive process before the foreign body actually penetrates the wall of the intestine. It is because of this fact that the number of fatal results from perforations of this sort is so small. It may be estimated from a series of 82 cases collected by Wölfler in which but eight deaths occurred.

The course observed in the majority of cases is that which is seen in my own series; that is to say, the clinical picture is presented of a circumscribed peritonitis of varying degrees of intensity.

In a considerable number of the cases there is formed an intra-abdominal abscess, and a good many of these make their way to the surface of the abdomen and are spontaneously evacuated there. The foreign body is usually evacuated with the contents of the abscess. In some instances it is retained and an operation is required for its removal.

In many of the cases the opening of the perforation has closed spontaneously before the abscess arrives at the surface. In a smaller number it remains open and a fecal fistula forms, as has been said.

The time occupied by such abscesses in reaching the surface is sometimes very long; weeks, and even months, have been noted in some of the cases.

In a few examples the abscess has pointed at a spot remote from the site of the perforation. Wölfler mentions one case in which it was found over the trochanter of one of the femurs.

In a few instances the conditions that were seen in the case of the bristle perforation in my series, have been met with: that is to say, the formation of a solid tumor, external to the abdominal wall, and having the appearance of a

sarcoma. In these cases the foreign body has usually been of small caliber and the mass of chronic inflammatory tissue is produced by long continued irritation.

The length of time during which foreign bodies that have been swallowed remain in the gastro-intestinal tract varies greatly. The shortest time that I have found recorded in any case was five hours. The average time is from three to six days. Months may elapse before they are passed out, and in a few cases the body has remained without its presence being suspected throughout life.

The most interesting examples of the taking of foreign bodies into the gastro-intestinal tract are to be found in that class of talented persons who have elevated the art of swallowing all manner of objects to the dignity of a profession.

I may briefly refer to two examples of these people. My attention was directed to the first of them when passing the portals of a dime museum by seeing a placard which bore the following legend "The World's Wonder—The Great Australian Glass Eater." Beneath the placard stood a barrel filled with bits of glass of varied shapes and sizes, and upon the barrel were painted the words "His Diet."

I entered and watched this gentleman eat his noonday meal. It consisted in a goodly number of bits of glass. This he swallowed seemingly without discomfort. I was informed that he had been engaged in this nutritious occupation for no less than five years. He presented the appearance of excellent health.

In the stomach of the second person of this fraternity the presence of the following objects was revealed by a radiograph: Two watch chains, three door keys, eight horse-shoe nails, some bits of glass, a breastpin, six safety pins—two of them open, a pocket knife, and some other articles the nature of which I do not now remember. These represented the residue of this person's diet during the previous six months. He ultimately became afflicted with symptoms of dyspepsia and sought medical advice. A gastrotomy operation was done and the articles named above were restored to him, and after a short convalescence he resumed his former professional vocation.

Some of the professional "swallowers" have had a less fortunate fate, however. Wölfler reports two instances in which, the stomach having been perforated by knives that had been swallowed, death resulted as a consequence.

The two points which have especially interested me in connection with this subject have been: The difficulties that may be offered to making a correct diagnosis which is due to the absence of information of a foreign body having been swallowed, and, the seeming injustice displayed by the unequal distribution of the immunity to injury that is exhibited by certain persons who are privileged to swallow without harm almost anything they can take into their mouths; while others cannot swallow even so

innocent looking a body as the bristle that I have showed you tonight without having a perforation of the stomach or intestine result, and being forced to live in constant anticipation of impending death because of the presence of a tumor on the abdomen which was of a character such as to involve in an error of diagnosis four of Boston's distinguished surgeons, one of whom has just had the pleasure of addressing you.

VARIETIES OF THE GOLD SOL TEST (LANGE) IN SEVERAL LOCI OF THE CEREBROSPINAL FLUID SYSTEM: A STUDY OF TWENTY-EIGHT AUTOPSIED CASES.*

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THE present communication offers evidence that the cerebrospinal fluid in different loci varies in its chemical composition. The method of examination used is the gold sol reaction of Lange. The test was performed on fluids obtained post mortem in a series of twenty-eight cases. The attempt was made to obtain fluids from the several cisternae and spaces, namely:—

1. Cerebral subarachnoid space.
2. Epicerebral space.
3. Lateral ventricles.
4. Third ventricle.
5. Cisterna at base of brain.
6. Spinal subarachnoid space.

Obviously it is quite difficult, if not impossible, to obtain a clear (bloodless) fluid on all occasions; consequently fluid was available from many less than the possible 168 loci. From fifty autopsies, clear fluid was obtained from at least one locus, in twenty-eight from two or more loci, and in several others no clear fluid was obtained.

The gold sol reaction is now being used extensively in clinical laboratories for the examination of cerebrospinal fluids. It is an application of the reaction of albuminous substances with colloidal gold. It has been shown and especially worked out by Zsigmondy¹ that albumins may be

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analyzed by their reaction with colloidal gold solutions. If to a colloidal gold solution one adds an electrolyte the gold is precipitated in the form of metallic gold. If, however, a proper albumin is added this precipitation (*Ausflockung*) does not occur. The different albumins offer this species of protection to the gold solution, depending on dilutions. They have been charted according to this characteristic, and different ones can thus be separated by the so-called "gold number." This is true of proto- and hetero-albumoses, while, on the other hand, deuto-albumoses react with the gold colloid as do electrolytes, and cause the precipitation of the gold. Spinal fluids from cases of certain inflammatory conditions of the central nervous system, such as the meningitides, tabes, paresis, etc., act in the manner of the deuto-albumoses and cause a change in the colloidal solution. Spinal fluids from cases in which there is no evidence of an inflammatory process often exhibit no effect, or only a slight one, with the gold sol test. There seems to be no doubt that it is the proteid element in the spinal fluid that causes the change, a proteid different from that normally present in the spinal fluid.

The technic and details of the test may be found in the original articles by Lange,² or in English by Sippy and Moody,³ Miller and Levy,⁴ or Kaplan.⁵ It will suffice at this time to state that the test is performed with ten dilutions of spinal fluid in 0.4% NaCl. solution, the dilutions ranging from 1/10, 1/20, 1/40, etc., to 1/5120, to each of which 5 c.c. of a preparation of gold colloid is added. The intensity of the reaction is read according to the amount of color change ensuing. The colloidal gold solution is cherry red in color, and the change in color due to partial precipitation, runs through red blue, blue red, blue, pale blue or lavender, to colorless, when all the gold has been precipitated. These changes are charted by numbers, the red unchanged fluid being designated by 0, the colorless solution by 5.

As stated above, the tests on which this paper is based were performed with cerebrospinal fluids obtained post mortem. One wonders at once if the results obtained with these post-mortem fluids are analogous to results obtained with spinal fluids obtained ante mortem. We discussed this question in another paper,⁶ and concluded that the evidence showed that: "The gold sol test has the same value in the examination of cerebrospinal fluid obtained post mortem from the lumbar region as ante mortem, and the results may be similarly interpreted for diagnostic purposes." Many of the cases discussed in that consideration are included in the present series.

The point to which we wish to call especial attention in this communication is that the reaction of the colloidal gold solution may vary in the fluids from the same case taken from different loci of the cerebrospinal fluid system.

Thus the fluid from the lumbar region may differ in its reaction with the gold sol, thereby proving a difference in the albumin content, from the fluid obtained from the third ventricle, which in turn may differ from the fluid of the lateral ventricles or subarachnoid space, and these fluids may each differ from one another. Such a difference is not invariable, for the reaction may be negative in several loci, and fluids from the different loci may give the same positive reaction.

There are 28 cases in which the fluid has been obtained and examined from more than one locus. In 24 of these 28 cases the reaction differed in fluids from the same case obtained from different loci; in 4 cases the results were identical. In two cases the reaction was identical in two loci, while differing in other loci; in five more the reaction in two loci was very similar but differed from that obtained in other loci of the same case.

Three cases (Nos. S. B. I. 1914. 58, 87, and 76) may be cited as striking illustrations. The spinal fluid obtained from the lumbar region in No. S. B. I. 1914. 58 gives the "paretic reaction," as did the *ante-mortem spinal fluid*, and general paresis is the diagnosis confirmed by post-mortem examination. The fluid from the third ventricle gives a strikingly different reaction.

Spinal fluid.....	5	5	5	5	5	5	5	5	4	3
Third ventricle.....	0	1	2	2	3	3	2	2	1	0

The spinal fluid from No. S. B. I. 1914. 87, another case of clinical general paresis, again gives the "paretic reaction," but the fluids from the base of the brain, subdural space and third ventricle each give different reactions, becoming less marked in that order.

Spinal.....	5	5	5	5	5	4	4	4	3	2
Base of brain.....	3	3	3	4	4	5	2	2	1	1
Subdural space.....	3	3	3	2	2	2	1	0	0	0
Third ventricle.....	0	0	0	1	1	0	0	0	0	0

That such a difference in reaction from the different loci is not characteristic in general paresis, or that the fluid in the third ventricle necessarily gives a slighter reaction than the spinal is proved by the following examples. No. S. B. I. 1915.1 gives the typical reaction with fluid obtained both from the base of the brain and subdural space.

Base of brain.....	5	5	5	5	5	5	5	5	5	4
Subdural space.....	5	5	5	5	5	5	5	5	5	4

No. S. B. I. 1914. 75 shows the "paretic reaction" with the spinal and subdural fluid and an almost identical reaction with the fluid from the third ventricle.

Spinal.....	5	5	5	5	5	5	3	0	0	0
Subdural.....	5	5	5	5	5	5	5	4	3	2
Third ventricle.....	3	5	5	5	5	5	3	2	0	0

No. S. B. I. 1914. 75 (not included in this series as fluid obtained but from one locus) shows that the fluid from the third ventricle may give

a reaction of the fullest intensity. This again is a case of general paresis.

Third ventricle..... 5 5 5 5 5 5 5 5 5 5

No. S. B. I. 1914.76, a hydrocephalic imbecile with cerebrospinal tuberculous meningitis, gives with the fluid from the lateral ventricles and base of the brain reactions which, while differing from each other, are such as have been described as being found in tuberculous meningitis. The spinal fluid gives a very different reaction.

Lateral ventricle..... 0 0 ± 2 2 2 1 0 0 0
Base of brain..... 0 0 0 0 0 1 2 2 1 0
Spinal..... 1 1 1 1 1 1 1 2 2 3

From a perusal of all the cases it is seen that in some instances the reaction is stronger in one locus, in other cases a different locus gives the greater reaction so that there is no definite rule to be observed, unless the rule that chemical differentiation is characteristic of many fluids.

These differences in reaction in different loci prove that there is a difference in the albumin content of the fluids obtained from the several loci. This difference is qualitative and not merely quantitative, for the reaction as here obtained does not depend so much on the quantity of albumin present as on its composition; thus the reaction in its intensity or the dilution in which it occurs does not depend on the amount of albumin precipitated by trichloroacetic acid or the amount of globulin precipitated by half saturation with ammonium sulphate, but evidently on the kind of albumin. Such differences of reaction with the fluids from the different loci are of great significance in the clinical application of the Lange test, for in this test the fluid is obtained by ordinary lumbar puncture, and expected to give us information concerning a pathological process at work in a locus often at a distance. But the reaction obtained in the spinal fluid may be very different from that to be obtained from fluid in the cortical region. Thus in general paresis the region of greatest interest is the cerebral cortex; but the fluid examined gives no necessarily true criterion of the condition of the fluid in the situation where the parietic process is at work. Since this is the case, there is reason to suspect that not every case of general paresis will give the same reaction in the spinal fluid. We believe there is sufficient clinical evidence to substantiate this.

Of still greater importance than the matter of the specificity of the Lange test for differential diagnosis is the bearing of the facts here presented on the question of the physiology of the cerebrospinal fluid system. Very little is definitely known as to the direction of flow of the fluid. There is a difference of opinion concerning the communication of fluid from one locus to another. It is stated in Quain's Anatomy that, "All the various subarachnoid spaces from a series of intercommunicating channels, and the fluid they contain is continuous with that of

the ventricular cavities by the foramen of Magendie and the foramina of Luschka." Plaut, Rehm and Schottmüller state: "The cerebrospinal fluid of the brain and spinal cord are in free communication with one another. It is to be accepted with great probability that the fluid in the ventricles communicates with the fluid of the subarachnoid space." Other investigators, as Cruveilhier, Reichert, Kölliker, deny the existence of the foramen of Magendie. McIntosh and Fildes, Head and Earnshaws have recently written: "It is doubtful to what extent the ventricular fluid contributes to its (the spinal fluid's) constitution, and we think that it is improbable that this fluid passes directly from the ventricles into the cerebrospinal fluid by way of the foramen of Magendie, even when this exists."

Mestrezat¹⁰ and Kaplan⁵ state that in certain cases of icterus where the spinal fluid was discolored yellow by bile pigment it was found at autopsy that the ventricular fluid was clear, showing in these cases that there was no free circulation from the fluid of the cord upward to the fluid of the ventricles.

Several authors have spoken of a difference in the composition of the fluid in different loci such as shown by our results. Thus Mott¹¹ quotes Sir T. Barlow and Dr. Lees: "Cerebrospinal fluid obtained from any point below the fourth ventricle cannot be a pure secretion; it must contain waste products resulting from cerebral metabolism, for into the subarachnoid space surrounding the brain open the lymphatic sheaths of all the cerebral arteries." In like manner Cushing states: "There are reasons for believing that there may be recognizable differences between the two fluids—ventricular and subarachnoid—under normal, as well as under experimental and therapeutic conditions, owing to the possible accretion to the ventricular fluid of waste substances during its passage through the subarachnoid perivascular and perineuronal spaces." And again: "Fluid secreted by the plexuses is not the same in composition as that contained in the cerebrospinal spaces, in view of the probable increment it must receive from these perivascular lymphatics." Cushing in the same article reports that Jacobson has shown that, "Comparative studies of the spinal and ventricular fluid show that there is a slightly higher percentage of sugar in the ventricular than in the subarachnoid fluid, whereas the reverse is true of the albumen content." And he further reports an instance where the Wassermann reaction in the blood serum and spinal fluid was negative, but positive in the ventricular fluid.

It is an unsolved question how much adhesions have to do with this difference in composition of the fluids from the different loci of the same case. Southard¹² showed that in syphilitic meningitis the adhesions might form compartments and thus cause to result a difference in

the cellular content above and below such adhesions. In the majority of the cases seen at autopsy in the hospitals for the insane there is some evidence of thickening of the meninges, and there might well be such adhesions.

Our work with the colloidal gold test demonstrates that the composition of the cerebrospinal fluid in the various cisternae and spaces of the cerebrospinal axis may differ, and that therefore in all probability there is not a free circulation or exchange of the fluid. We have further proved that the examination of the albumin content of cerebrospinal fluid obtained by lumbar puncture is not in all cases a true indication of the condition existing higher up. What is true of albumin is probably true of other substances, particularly the Wassermann reaction, as the Wassermann bodies are probably contained in the globulin.

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LOCUS.	1 10	1 20	1 40	1 80	1 160	1 320	1 640	1 1280	1 2560	1 5120	
Spinal fluid.....	0	0	0	1	2	2	±	0	0	0	B. S. H., 1914.
Third ventricle.....	0	0	0	0	0	0	0	0	0	0	Pellagra.
Spinal fluid.....	3	2	2	2	1	1	±	0	0	0	B. S. H., 1914.34.
Third ventricle.....	0	0	1	3	3	2	2	1	0	0	Paranoid condition, of dementia precox.
Spinal fluid.....	3	4	4	4	3	2	2	2	1	1	B. S. H., 1914.35.
Third ventricle.....	0	1	2	2	2	2	2	1	0	0	Organic dementia. Arterio sclerotic.
Cerebral subarachnoid..	0	0	0	0	0	0	0	0	0	0	S. B. I., 1914.55.
Third ventricle.....	0	0	0	±	±	2	2	1	1	0	Cerebral arteriosclerosis.
Spinal fluid.....	5	5	5	5	5	5	5	5	4	3	S. B. I., 1914.58.
Third ventricle.....	0	1	2	2	3	3	2	2	1	0	General paresis.
Spinal fluid.....	1	1	1	1	1+	1	1+	2	3	3	S. B. I., 1914.76.
Lateral ventricle.....	0	0	±	2	2	2	1	0	0	0	Hydrocephalus - tuberculous cerebrospinal meningitis.
Base of brain.....	0	0	0	0	0	1	2	2	1	0	...
Lumbar spinal fluid....	2	3	4	5	5	5	5	5	4	3	S. B. I., 1914.79.
Cervical spinal fluid....	1	2	3	4+	5	5	5	4+	3	1	Glioma.
Third ventricle.....	0	0	±	1	1	1+	3	3	2+	2	
Spinal fluid.....	5	5	5	5	5	5	3	0	0	0	S. B. I., 1914.75.
Cerebral subarachnoid..	5	5	5	5	5	5	5	4	3	2	General paresis.
Third ventricle.....	3	5	5	5	5	5	3	2	0	0	
Spinal fluid.....	1+	2	2	3	2	1	±	0	0	0	S. B. I., 1914.79.
Lateral ventricle.....	0	0	0	0	0	1	2	1	±	0	General paresis.
Cerebral subarachnoid..	±	±	1	1	1	2	2	±	0	0	
Cerebral subarachnoid..	0	0	0	±	±	0	0	0	0	0	S. B. I., 1914.82.
Base of brain.....	0	0	1	2	2+	±	±	0	0	0	
Third ventricle.....	0	0	0	±	1	2	1	0	0	0	Imbecile.
Spinal fluid.....	5	5	5	5	5	4+	4+	4	3	2	S. B. I., 1914.87.
Cerebral subarachnoid..	3+	3+	3+	2	2	2	1	±	±	0	General paresis.
Base of brain.....	3	3	3	4	4	5	2	2	1+	1	
Third ventricle.....	0	0	0	1	1	0	0	0	0	0	
Spinal fluid.....	3	2+	2	2	2+	4	1	0	0	0	S. B. I., 1914.88.
Cerebral subarachnoid..	3+	4	5	2+	2+	1	1	0	0	0	General paresis.
Third ventricle.....	1	2	1	1	0	0	0	0	0	0	
Cerebral subarachnoid..	0	0	0	0	0	0	0	0	0	0	S. B. I., 1914.90.
Third ventricle.....	0	0	±	±	1+	2+	2	1+	1	1	Dementia precox.

LOCUS.	1 10	1 20	1 40	1 80	1 160	1 320	1 640	1 1280	1 2560	1 5120	
Cerebral subarachnoid..	0	0	0	0	0	3	3	3	0	0	S. B. I., 1914.91. Chronic dementia. (Acute pachymeningitis.)
Third ventricle.....	2	2	2	3	3	4	4	3+	3	2	
Base of brain.....	4	4	2	3	2	2	2	5	5	5	
Cerebral subarachnoid..	1	1	1	1	2	2	3	0	0	0	S. B. I., 1914.93. Manic depressive insanity.
Epicerebral.....	0	0	0	0	0	2	2	0	0	0	
Base of brain.....	4+	5	5	5	5	5	5	4+	1	1	S. B. I., 1914.92. Arteriosclerotic dementia.
Lateral ventricle.....	3	5	5	5	5	3	0	0	0	0	
Cerebral subarachnoid..	3	3	3	3	3	3	3	3	1	1	
Spinal fluid.....	0	0	0	±	1	2	1	0	0	0	S. B. I., 1915.2. Korsakow's polyneuritic Psychosis.
Base of brain.....	0	0	0	±	2	1	0	0	0	0	
Cerebral subarachnoid..	0	1	2	3	3	1	1	3	2	1	
Epicerebral.....	0	0	0	0	±	±	0	0	0	0	
Third ventricle.....	0	1	1	1	5	5	4	2	1	1	
Base of brain.....	±	1	1+	1	±	0	0	0	0	0	S. B. I., 1915.3. Chronic internal hydrocephalus. Brain abscess.
Third ventricle.....	0	0	0	0	0	0	0	±	1	1+	
Left lateral ventricle..	0	0	1	1	1	1	0	0	0	0	
Right lateral ventricle..	0	0	0	1	1	0	0	0	0	0	S. B. I., 1915.4. Senile dementia.
Spinal fluid.....	0	0	0	±	1	0	0	0	0	0	
Base of brain.....	0	0	0	±	1+	1	0	0	0	0	
Epicerebral.....	0	0	0	0	0	0	0	0	0	0	
Third ventricle.....	0	0	0	0	1+	2	1+	0	0	0	
Spinal fluid.....	0	0	0	±	1	2	1	0	0	0	S. B. I., 1915.5. Manic-depressive insanity.
Base of brain.....	0	0	0	0	0	0	0	0	0	0	
Cerebral subarachnoid..	0	0	0	0	0	0	0	0	0	0	
Third ventricle.....	0	0	0	0	0	1	1	2	1	1	
Spinal fluid.....	0	0	0	0	0	0	0	0	0	0	
Third ventricle.....	0	0	0	0	0	0	0	0	0	0	S. B. I., 1914.66. Multiple sclerosis.
Base of brain.....	5	5	5	5	5	5	5	5	5	4	
Cerebral subarachnoid..	5	5	5	5	5	5	5	5	5	4	S. B. I., 1914.80. Arteriosclerosis.
Spinal fluid.....	0	0	0	±	±	0	0	0	0	0	
Cerebral subarachnoid..	0	0	0	0	±	±	±	0	0	0	
Third ventricle.....	0	0	0	±	1	2	1	0	0	0	
Spinal fluid.....	0	0	0	1	2	±	0	0	0	0	
Third ventricle.....	0	0	0	0	1	2	0	0	0	0	S. B. I., 1914.83. Epilepsy.
Spinal fluid.....	0	0	0	1+	1+	1	0	0	0	0	
Third ventricle.....	0	0	0	0	1	2	1	1	0	0	S. B. I., 1914.84. Manic depressive insanity.
Base of brain.....	0	±	1	2	2	1	1	0	0	0	
Cerebral subarachnoid..	±	1	1+	2	2+	2	2	1+	1	0	S. B. I., 1914.85. Cerebral arteriosclerosis.
Third ventricle.....	0	0	1+	1	0	0	0	0	0	0	
Base of brain.....	0	0	1	1	2	3	1	±	0	0	S. B. I., 1914.86. Chronic mania.
Third ventricle.....	0	0	0	0	2	1	0	0	0	0	
Cerebral subarachnoid..	0	0	0	0	0	1	1	0	0	0	
Base of brain.....	0	0	0	±	±	0	0	0	0	0	S. B. I., 1914.70. Chronic dementia.
Third ventricle.....	0	0	0	1	1	±	0	0	2	0	

A STUDY OF LEPROSY: WITH ESPECIAL REFERENCE TO THE PULSE AND TEMPERATURE.

By JAMES A. HONEIJ, M.D., BOSTON.

From Penikese Hospital and the Department of Bacteriology, Harvard University Medical School.

(Continued from page 584.)

CASE 7. S. G. Sex, male. Age, 70. Social state, married. Nationality, Russian Jew. Resident in United States, 15 years. Resident at Penikese, 5 years. Diagnosis of leprosy made 6 years ago. Type

of disease, mixed (?). Stage of disease, slowly active. Most common lesions, ulcers. Dispensary attendance, frequent. Symptoms most marked, pain, diarrhea, throat. One "toxic-febrile" attack. Activities of patient, none. Disposition, good, apprehensive. Prognosis, unfavorable. Remarks, mouth, throat, bowels and bladder are troublesome. Weak heart.

Several factors other than leprosy influence the chart of this patient. The patient is 70 years of age, has cardiac disease and fairly frequent attacks of diarrhea. He is also of a neurotic temperament. Rise of temperature in this case was rarely followed by any abnormal increase of

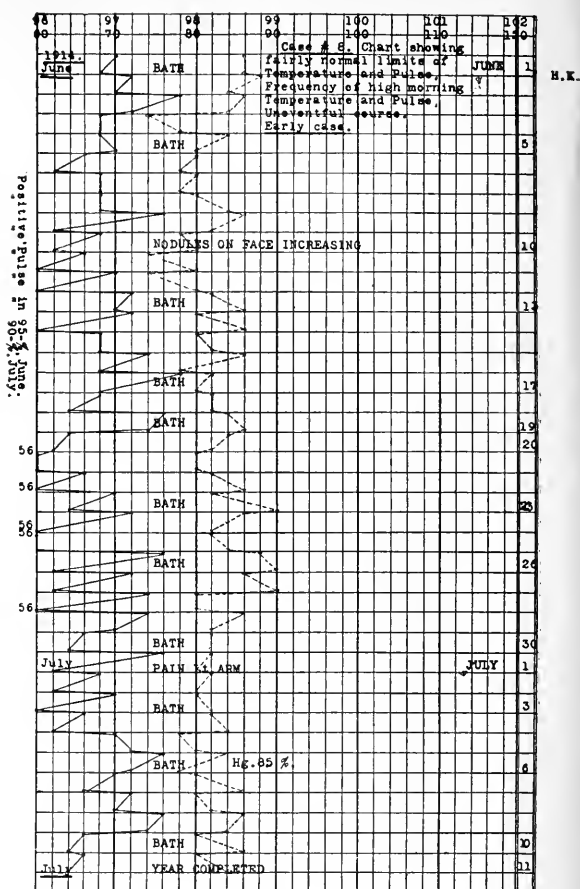
pulse rate. During the first four months under observation, marked rise of temperature, often of 4 degrees or more, occurred during attacks of diarrhea, accompanied by an increase in pulse rate of only 10 to 18 beats per minute. During the first few months the temperature was often elevated and very irregular. The two curves do not run parallel and the pulse curve is insignificant compared with that of the temperature. From November to April the temperature at evening was somewhat above normal and in the morning most frequently 97° and less. During this same period, however, the pulse irregularity with its frequent high exacerbations, is most striking. The pulse curve now exceeds that of the temperature; whereas, previous to November, the temperature curve was above that of the pulse. During the last four months, when both temperature and pulse curves were within fairly normal limits, the "morning pulse" increase was marked. For the first four months this appeared as much as 31% of the time, for the following four months 40+%, and for the last four months 62%. Comparing the last period with the first, we find that the disease has run a more even course, with fewer lesions, slight and short attacks of diarrhea, and with but slight disturbances. This agrees with the temperature and pulse curves and, still more important, with the "morning pulse" increase, which is especially noticeable during the last three months, being recorded 71+ % of the time. During the whole year the patient has had one "toxic-febrile" attack with chills. He has grown feeble and has lost some weight.

CASE 8. H. K. Sex, male. Age, 27. Social state, single. Nationality, Russian Jew. Resident in United States, 8 years. Resident at Penikese, 1 year. Diagnosis of leprosy made 1 year ago. Type of disease, tubercular. Stage of disease, early. Condition of disease, slowly active. Most common lesions, bullae, ulcers, small tubercles. Dispensary attendance, infrequent. No "toxic-febrile" attacks. Activities of patient, light housework, little gardening and fishing. Disposition, good. Prognosis, favorable. Remarks, left eye troublesome, throat occasionally.

This is an early case and has been under observation for less than a year. The temperature and pulse have been within fairly normal limits for leprosy and have shown occasional slight irregularities. The disease so far has run an uneventful course. The chart shows the typical "morning pulse," which is also at intervals subnormal in the evening. An interesting point is the relative frequency of the higher morning temperature which occurs 30% of the time, and also that of the "morning pulse," which is present during the whole nine months, 80%. The patient has gained in weight.

CASE 9. M. M. Sex, female. Age, 52. Social state, married. Nationality, Portuguese. Resident in United States, 10 years. Resident at Penikese, 5 years. Diagnosis of leprosy made 5+ years ago.

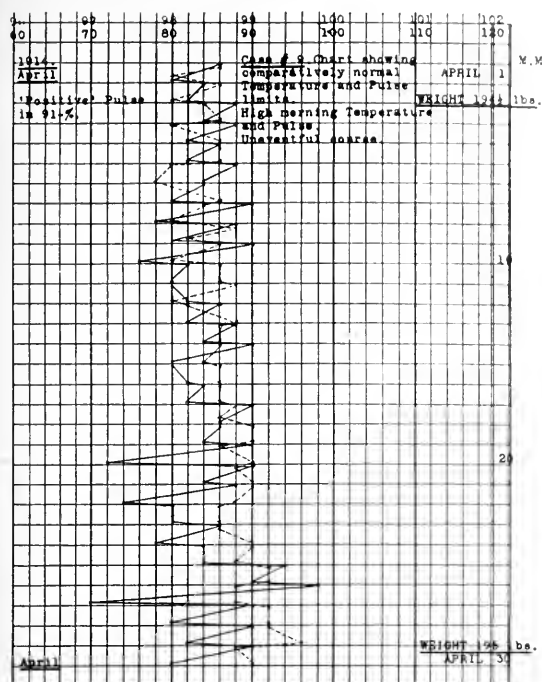
CHART No. 8.



Type of disease, anesthetic. Stage of disease, first, latent. Condition of disease, latent(?). Most common lesions, ulcers and blebs due to burns. Dispensary attendance, seldom. Symptoms most marked, none. One slight "toxic-febrile" attack. Activities of patient, cooking, light housework, walking. Disposition, excitable, irritable. Prognosis, favorable. Remarks, patient in excellent physical condition.

In this case the temperature and pulse remained within comparatively normal limits. With the exception of one chill during the year, which was accompanied by an elevation of temperature and pulse of 102° and 116, the patient has presented no acute symptoms or active lesions peculiar to leprosy. The pulse exacerbations were in all cases due to an excitable temperament. The chart for the year shows no differences from month to month. The temperature ranges between 98° and 99°, infrequently more than 99°. The pulse readings average between 80 and 90 for the twelve months. The temperature fall at night occurs for at least one-fourth the whole period and the pulse at least three-fourths of the time. A comparison between this case and Cases 7 and 4 is interesting. The patient has lost weight slightly; but, being extremely heavy, the loss in weight is considered a normal fluctuation. The patient is about to be discharged.

CHART No. 9.



CASE 10. J. N. Sex, male. Age, 30. Social state, single. Nationality, English. Resident in United States, 12 years. Resident at Penikese, 7 years. Diagnosis of leprosy made 10 years ago. Type of disease, tubercular. Stage of disease, advanced. Condition of disease, rapidly progressive. Most common lesions, ulcers, pustules, bullae, swollen glands. Dispensary attendance, frequent. Symptoms most marked, chills, pain, throat. Several "toxic-febrile" attacks. Activities of patient, none. Disposition, depressed, dissatisfied. Prognosis, unfavorable. Remarks, patient had all lesions and symptoms of leprosy. Died August, 1913.

This patient was under observation only one month when he succumbed to complications occurring in the course of the disease. The case is of interest because the chart shows the "morning pulse" on the greater number of days, also a marked difference in morning and evening rate. The pulse rate averaged between 90 and 100, and the temperature, which was more often lower in the evening than in the morning, was more frequently 97° than 98° or more. The temperature and pulse for the three days previous to death averaged as follows: temperature 95.1°, pulse rate 70; lowest temperature 94.2°, pulse rate 60.

CASE 11. L. P. Sex, female. Age, 35. Social state, single. Nationality, Lettish. Resident in United States, 16 years. Resident at Penikese, 7 years. Diagnosis of leprosy made 7+ years ago. Type of disease, tubercular. Stage of disease, fairly active, progressive. Most common lesions, bullae, ulcers, swelling of glands, etc., marked induration, nodules. Dispensary attendance, frequent. Symptoms most marked, pain, headache, swelling, chills. One severe, one slight "toxic-febrile" attack. Activities of patient, very active in gardening, wash-

ing, housework, cooking. Disposition, depressed, morbid. Prognosis, unfavorable. Remarks, typical tubercular "leontic" case. Throat troublesome at times.

In this case a greater fluctuation of pulse was seen than in the temperature. The variation of the temperature occurred in periods rather than daily, whereas the pulse showed a greater daily variation. From July to the first half of December and during the "toxic-febrile" attack, the pulse bore a fair relationship to the temperature, although the pulse tended to predominate. This became more evident from January to May, distinctly more so from May to July. The average pulse rate for the last three months was at least 10 beats higher, although the irregularity was not so noticeable. During the whole twelve months the patient had one severe "toxic-febrile" attack, accompanied by great swelling of arm and glands, pain, fever and despondency; and a second slight attack four months later. The whole chart is typical and bears out the opinion that progress of the disease can be studied in most, if not in all, the cases by this means. The most striking points are the gradual predominancy of the pulse, the increase in rate, the high percentage of "morning pulse" rises which occur during 70% of the whole period and 75+% for the last four months, the typical reaction during a "toxic-febrile" attack or after severe exertions, and the fall of temperature in the evening, which is found one-fifth of the time. The patient is strong and active and has gained in weight, although a considerable loss of weight is recorded after attacks.

CASE 12. F. P. Sex, male. Age, 47. Social state, married. Nationality, Portuguese. Resident in United States, 23 years. Resident at Penikese, 9 years. Diagnosis of leprosy made 10+ years ago. Type of disease, tubercular. Stage of disease, last.

CHART No. 11.

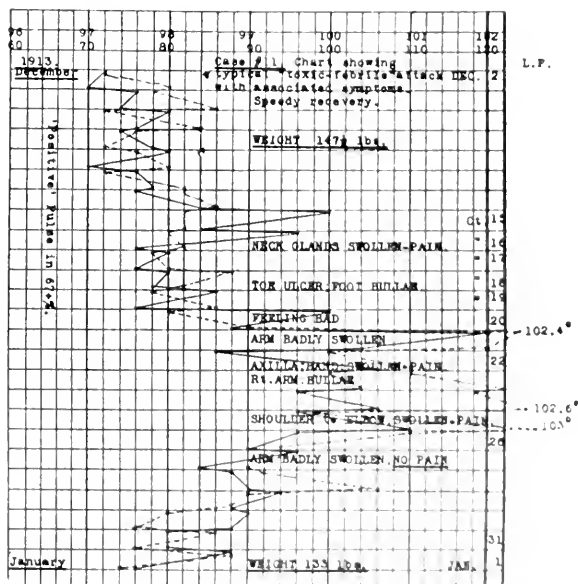
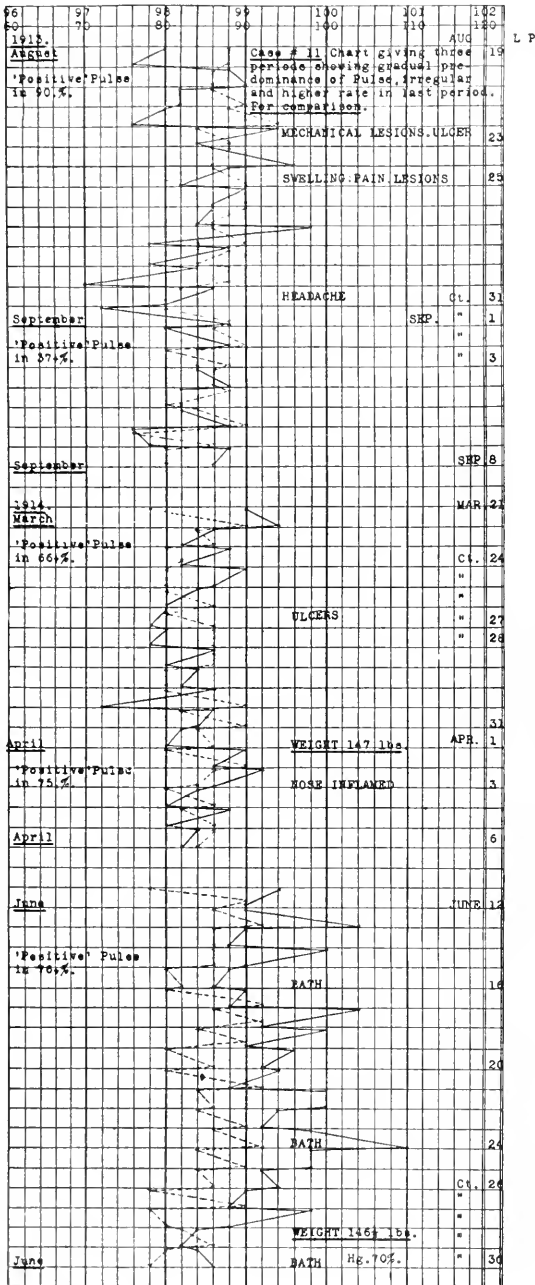


CHART No. 11 (continued).



advanced. Condition of disease, active. Most common lesions, ulcers, swollen glands, etc. Dispensary attendance, constant. Symptoms most marked, chills, pain, swellings, throat, diarrhea. One severe, two slight "toxic-febrile" attacks. Activities of patient, none. Disposition, good. Prognosis, bad. Remarks, patient is in final stages of the disease, mutilation severe.

This patient is in the most advanced stage of the disease. Lesions are numerous and his reactions are severe. Very slight disturbances result in an elevation of temperature and an increase in pulse rate (see chart). This rise of temperature and pulse curve was partly the re-

sult of shock, caused by a fall from a chair—the patient being blind. The average temperature was high for the first four months; markedly decreased during the next four months and again increased in the last period. During the last eight months the pulse has been more predominant, showing frequent elevations without similar increase in temperature. The "morning pulse" is fairly typical but is somewhat obscured by the constant reactions. The interrupted course of such an advanced case cannot be expected to reveal the same high percentage of this phenomenon as a chronic case with a regular temperature and pulse. The average number of days in which this "morning pulse" occurred during the whole period was 66+, and during the last four months 80%, when the course of the disease was more regular and presented practically no reactions. The patient is markedly anemic, hemoglobin index rarely exceeding 40%. The patient lost considerable weight during the year.

CASE 13. W. Q. Sex, male. Age, 38. Social state, single. Nationality, Chinese. Resident in United States, 14 years. Resident at Penikese, 1 year. Diagnosis of leprosy made 2+ years ago. Type of disease, macular, tubercular. Stage of disease, early. Condition of disease, questionably active. Most common lesions, pustules, enlarged glands. Dispensary attendance, fairly regular. Symptom most marked, pain. No "toxic-febrile" attacks. Activities of patient, light housework, little gardening and fishing. Disposition, good, apprehensive. Prognosis, favorable. Remarks, patient has improved considerably.

No chart among these cases shows better the improvement of the patient. During the first

CHART No. 12.

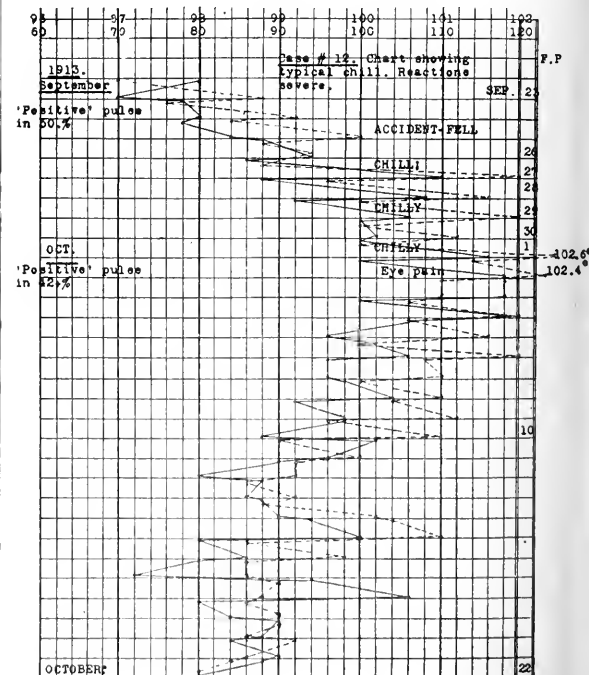
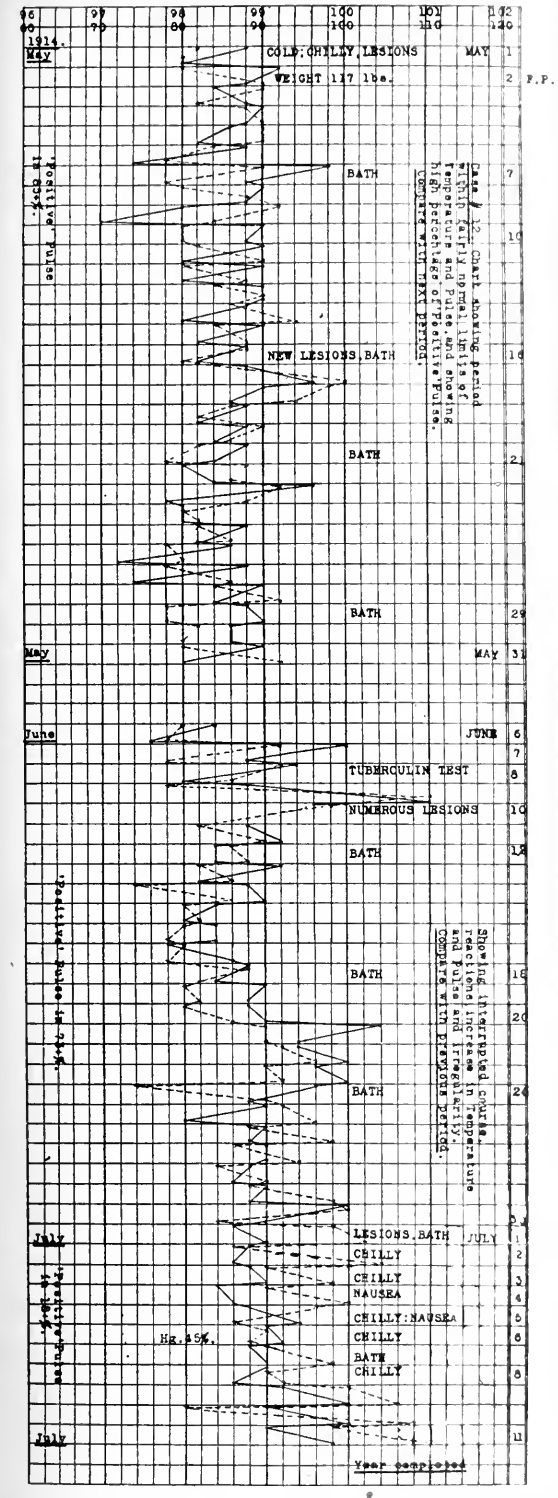
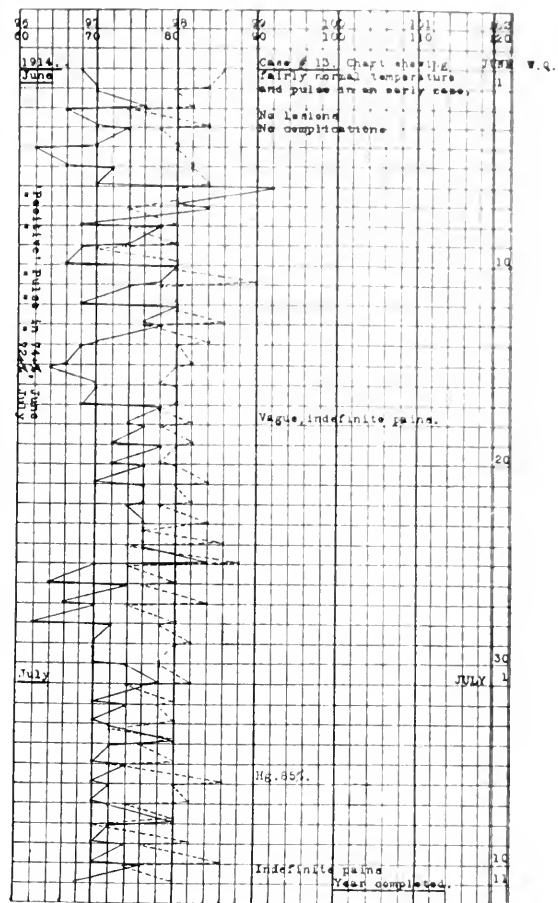


CHART No. 12 (continued).



two months the average daily temperature and pulse were highest and the daily remissions most marked; the last four months the temperature and pulse were nearly normal. The latter bore a more normal relation to the temperature. The patient has had no acute exacerbations and but slight reactions. The first five months showed

CHART No. 13.

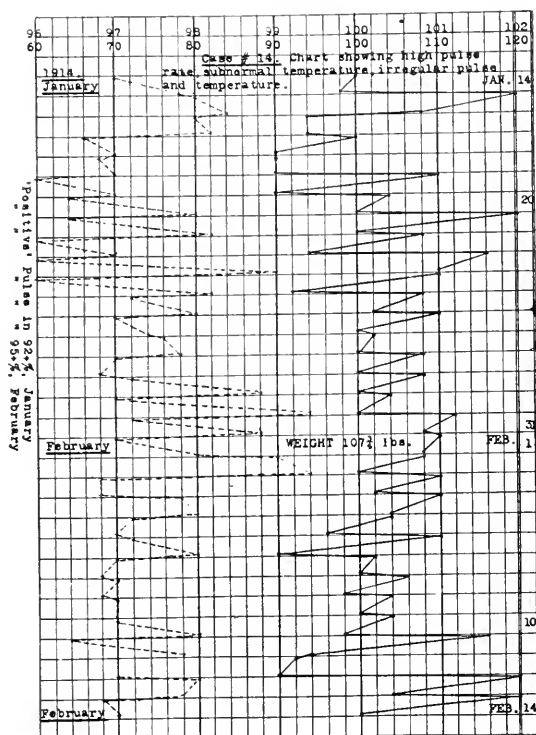


the lowest percentage of "morning pulse" rises, an average of 38%; the last eight months an average of 63+%. There is an evening fall in temperature in less than 1% of the whole time. During the whole period the temperature has never exceeded 100°, and reached this figure only three times. The pulse rate in only five instances exceeded 100 and exceeded 90 only eight times during the last five months. The case is interesting because the chart clearly demonstrates the improvement of the patient. The patient has not lost in weight.

CASE 14. A. T. Sex, male. Age, 22. Social state, single. Nationality, English. Resident in United States, 12 years. Resident at Penikese, 5 years. Diagnosis of leprosy made 6 years ago. Type of disease, tubercular(?), mixed. Stage of disease, advanced. Condition of disease, progressive, active. Most common lesions, ulcers, swellings, bullae, marked induration. Dispensary attendance, regular. Symptoms most marked, pain, swelling, fatigue. No "toxic-febrile" attacks. Activities of patient, indoor activities, amusements. Disposition, good, nervous. Prognosis, unfavorable. Remarks, patient has failed rapidly. Throat, nervous. Weak heart.

At first sight the chart demonstrates three points: a pulse rate out of all proportion to the temperature; a low, if not subnormal tempera-

CHART No. 14.



ture; and a daily, as well as a periodical, irregularity both in the temperature and pulse. Three main factors are responsible, namely, leprosy in an advanced stage, a cardiac lesion and a highly nervous temperament. The contrast is most marked when compared with Case 13. A comparison with Case 7, which is also a cardiac case, shows that that lesion is not alone responsible. That nervous influences alone are not of sufficient importance to produce such a condition of the pulse is best proved by a comparison with Case 9. This case has run a chronic course with no marked exacerbations or serious disturbances and should show a high percentage of the "morning pulse" during the whole course. This phenomenon occurred three-fourths of the whole time. The case is, therefore, typical and bears out the suggestions which this paper presumes to present. A study of all the charts will indicate more precisely the value of this case. Patient has not lost weight, although there has been considerable fluctuation from month to month.

In leprosy the lesions are due to the presence of bacilli-laden endothelial leucocytes in the vessel wall, which may in consequence be considerably thickened. Vessels in time may show much thickening of the walls and narrowing of the lumen (Mallory, Dohi, Marchoux). Jadassohn states that the changes begin in the vessels with infiltration of the walls. Authorities agree that degeneration of the nerves occurs (Sorel), motor paralysis, loss of sensation and hyperesthesia are frequent, while headache, neuralgia, "rheumatic" pains, neurasthenia, all indications of nerve involvement are common. The presence

of erythema, macular areas, local swellings, etc. (Darrier) are all evidence of the existence of vasomotor and peripheral circulation disturbances. The skin is infiltrated and shows in almost every case areas of induration. Atrophy of highly differentiated cells results, smooth and striated muscle cells disappear and connective tissue takes its place (Mallory).

Jadassohn believes that apart from mechanical disturbances, which the bacillus of leprosy causes, the endotoxin or toxin effect plays an important part. This he concludes logical, as the circulation is through organs that are heavily infected (Sugai, Bayon). The bacilli are in the blood stream (Rabinowitsch, Crow, Stephan) and probably more abundant during febrile attacks. It seems a matter of little doubt that this must have some effect on the heart and circulatory system.

The sudden and sometimes continued rise in temperature and pulse rate after exercise, as seen in leprosy, could be accounted for by the elimination of toxins into the blood streams as in tuberculosis (Paterson). It is known that the temperature of the blood exerts a powerful influence on the heart. It is also accepted that changes in composition or properties of the blood affect the pulse rate. Now if we consider the pathology of the circulatory system in leprosy, with the presence of bacilli in such enormous quantities in all lesions—greater probably than in any other disease (Bayon)—and are aware that the bacilli are found in the blood stream (Rabinowitsch, Stephan, Crow, Honeij) it is logical to believe that the bacilli of leprosy and their toxins are the cause of the symptoms occurring in the course of the disease. This is believed true of smallpox and pneumonia, specific marasmus (Kaufman) and other infectious diseases (McCrae).

The "toxic-febrile" attacks of leprosy with chills and other symptoms so characteristic of an infection, are undoubtedly results of the action of pathogenic bacteria in the skin lesions (streptococci, staphylococci). The cause of death in leprosy is due in the majority of cases to secondary infections. Therefore, it can be concluded that the whole train of phenomena of fever, nervous disturbances and chills denotes the action of toxin. In articles on lobar pneumonia (Musser and Norris) these statements appear: "The chill corresponds to time at which large doses of toxin are absorbed into the system" and that "rigor represents the period at which general systemic infection takes place."

In presenting a paper of this nature along original lines and in a disease so complex as leprosy, there are many difficulties to be overcome and in the discussion much is included that may give rise to valuable criticism. In leprosy there has been a conspicuous lack of clinical data, investigators apparently accepting it for granted that the disease presented no "symptom complex" different from other chronic diseases.

of temperature and the recovery by lysis gave a regular rise and fall, similar in some respects to Case 4, but more closely related to Case 5. In the latter the chart shows elevation of pulse and temperature during an attack with crisis and delayed recovery. In this case the pulse did not predominate, as it did in Case 5. The daily variations in temperature were greater for the whole period, but they showed an improvement for the last four months. The reactions during this last period were less severe and temperature and pulse were more nearly parallel and within usual limits. For the first two-thirds of the year the patient showed a condition suggesting general toxemia. There were no distinct chills with crises and no immediate reactions of temperature and pulse. The average number of days in which the "morning pulse" occurred was little over one-half the whole time and for the last four months it was approximately 62% of the time. During the latter period it was more regular and not influenced by secondary infections or serious disturbances. Throughout the twelve months the evening temperature was higher than that of the morning, except in one-half of one per cent. of the time. The average temperature and pulse for three periods of four months each was: T. 98° to 99°, P. 70 to 80; T. 98+° to 99+°, P. 70— to 80—; and T. 97° to 98°, P. 70 to 80. The patient is in an advanced stage of the disease, but has apparently lost no ground since March. There has been considerable loss of weight.

DIFFERENTIAL DIAGNOSIS AS REGARDS CHILLS, TEMPERATURE AND PULSE.

Charts Nos. 11 and 12 present two distinct periods of rise of temperature and pulse. Both cases showed symptoms and associated lesions, which I have termed "toxic-febrile" attacks. These attacks, when typical and severe, usually reach a climax upon the fifth to the tenth or twelfth day after onset. The curve assumes the picture of a "step ladder" until the temperature reaches 103° and pulse rate 120 or more. The descent to normal occurs in the same manner, although recovery is interrupted by frequent secondary exacerbations of periods varying between eight days and three weeks. Chills lasting from 15 to 60 minutes occur without regularity, preceding or during the climax of these attacks. During the period of observation no chills occurred that were not preceded by lesions, usually situated on the arms, hands, legs or feet. These were accompanied by extensive swelling, great tenderness and severe pain. The course of the lesions and accompanying symptoms is exceedingly rapid. The face is often flushed. Headache, nausea, apprehension and other nervous symptoms are usually present, followed by malaise and marked prostration. Pain and swelling later become localized and presently pus is located. These areas of infection, unless opened with evacuation of pus, form

ulcers of varying size and depth. The sooner the swelling is localized and opened, the sooner do the symptoms subside. In the year previous to this study, lesions and chills were exceedingly common. Since treatment has been instituted, lesions have been fewer and chills very infrequent. A study of these charts gives fairly conclusive proof that "toxic-febrile" attacks are associated wholly with secondary infecting bacteria. During this period of infection the characteristic appearance of the pulse disappears and the morning increase in pulse or temperature seldom occurs. A typical septic fever is seen in Case 5. This patient first presented severe lesions in both legs and feet. Later numerous pustules occurred over both thighs, buttocks, arms, hands and face, which continued for the better part of a month. There was no question whatsoever as to the part streptococci and staphylococci played here. This case is to be compared with Nos. 11 and 12, where the course is short, less severe, and in which a climax occurs with uninterrupted recovery. Sweating occurs infrequently and irregularly.

In *tuberculosis* chills occur early in the disease, before the rise of temperature, and not infrequently follow sweating.

The following charts, 16 and 17, show the typical temperature and pulse curves of tuberculosis (From the Boston Consumptives Hospital at Mattapan and selected by Dr. E. A. Locke, as being typical cases). The temperature and pulse show a regular rise and fall, with the usual rise at night. In the first case the prevailing average of temperature is 99+°, and in the second 100°. In tuberculosis, fever is not coincident with the rise of pulse rate. It is also believed that an increase in pulse rate of ten degrees and more for each degree of temperature is due to cardiac weakness. In these cases there is a constant difference between morning and evening temperature, and a reversal of high evening temperature in only two instances.

The pulse averages here between 80 and 90, except during high fever, when it is between 100 and 110. For a period of over four months the "morning pulse" is present 15+% of the time in the first case, and 12+% in the second. During the whole course the temperature, not the pulse, predominates. Sweating occurs during the course of the disease.

Chills occur in *malaria* before a rise of temperature. Within three hours a direct rise of temperature takes place from normal to 103° and 104° or more, immediately followed by a drop to normal. The rise of temperature occurs at regular intervals in all simple forms of malaria; pulse is rapid. The pulse, associated with an elevation of temperature in malaria, is always rapid. Sweating follows the attack. These symptoms present no similarity to leprosy.

In *lobar pneumonia* chills occur with the onset of the infection. A rise of temperature follows. The "morning pulse," which occurs in a small proportion of the time, usually shows a

CHART #16. Typical case of Active Tuberculosis.

For comparison with Leprosy cases.

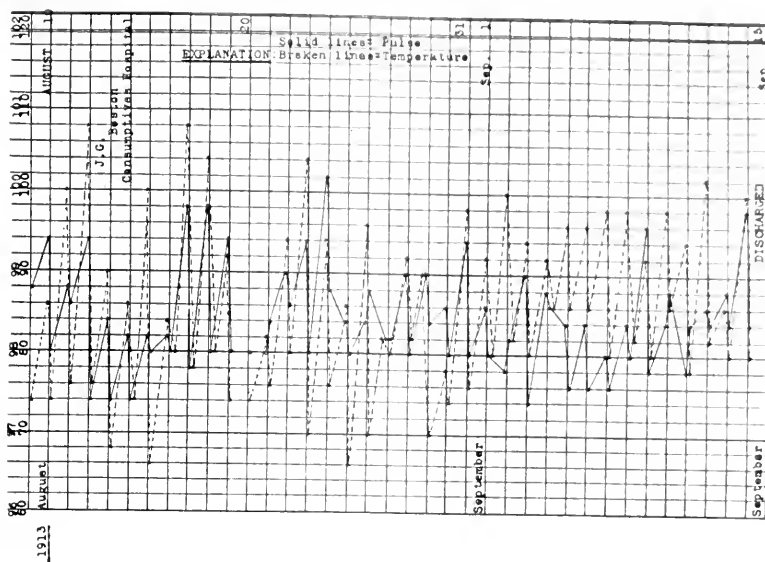
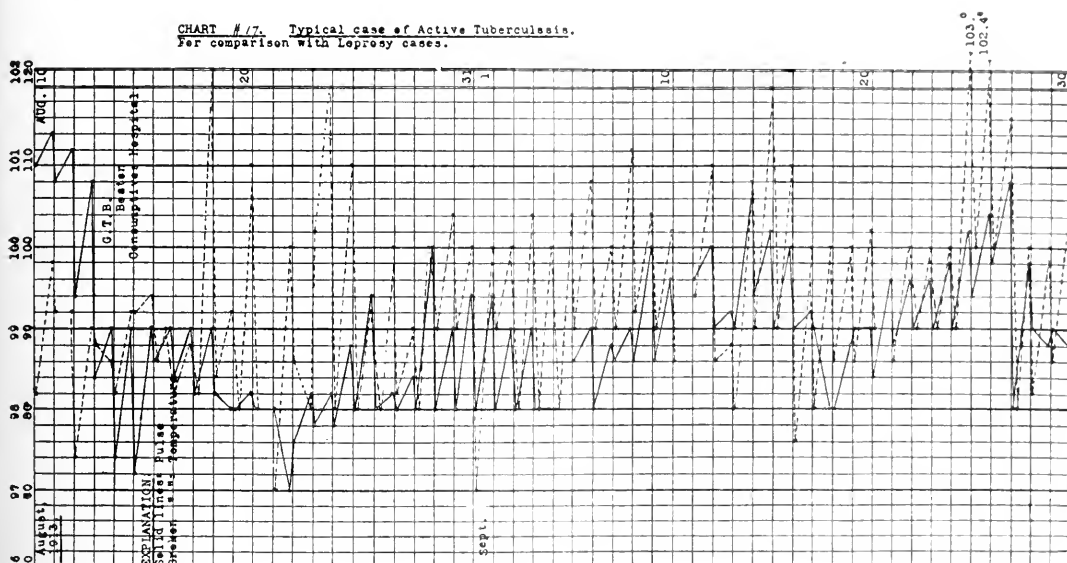


CHART #17. Typical case of Active Tuberculosis.

For comparison with Leprosy cases.



difference in rate of only three or four beats. This is nothing to compare with leprosy.

Erysipelas is ushered in with chilliness or distinct rigor, vomiting and rapid rise of temperature to 104° and 105° . The maximum is reached on the third day. After a few days of continued fever the temperature curve becomes irregular. Marked evening remissions, merging into a remittant or even an intermittent type, may occur. The disease terminates by crisis; or, after a longer febrile period, by lysis. In the latter instance the fever is prolonged and irregular. In no way is there a marked similarity to leprosy.

In *smallpox* chills mark the onset. Temperature rises rapidly to 104° and remains there with slight morning remission for about three days. In severe cases the decline is gradual.

Pulse and respiration are increased in proportion to the temperature.

In *glanders* and in septic infections chills occur. Only in this respect is there any similarity to leprosy.

A study of the records of cases at the Boston hospitals shows that in almost all cases other than leprosy, the "morning pulse" phenomenon, when present, was not constant. In none did it occur 50% of the time. In two cases of endocarditis and in one of myocarditis, in two cases of myxedema and in two of acute articular rheumatism, the largest proportion was found. In the following cases it appeared in a fair proportion: chronic nephritis with cardiac involvement, pneumonia, syphilis, psoriasis, eczema. In almost all cases where the "morning pulse" phenomenon occurred, the morning increase was

less than ten beats, generally only three and four beats. In conclusion, the following differential points between leprosy and other infectious processes are to be noted: the "morning pulse" phenomenon, which is found most commonly in cases of cardiac disease, does not occur consistently in any one disease and in less than 50% of the time in any one case. It occurs irrespective of height of temperature, even during a crisis. The difference in rate between morning and evening, when present, is usually only three or four beats. Finally, the pulse in almost all cases is correlated and consistent with the temperature.

(To be continued.)

Reports of Societies.

BOSTON DISPENSARY.

THE 118th annual meeting of the Boston Dispensary was held on the evening of January 21, 1915, at the Hotel Tulleries; Mr. Edward R. Warren, president of the institution, presiding.

Dr. S. S. Goldwater, Commissioner of Health, of New York City, well known for many years as superintendent of Mt. Sinai Hospital, was the principal speaker. His address is printed in full in this issue of the JOURNAL.* Dr. Allen J. McLaughlin, Commissioner of Health of Massachusetts, and Dr. Edward H. Bradford, Dean of the Harvard Medical School, delivered brief addresses in discussion of the same subject.

Dr. McLaughlin referred to the necessity of bringing public health work to the mass of the people by continuous and persistent effort. "The important service which dispensaries can render in this regard needs to be made effective," said Dr. McLaughlin, "by ample provision of the service of visiting nurses and social workers. The development of this visiting and social service in the homes, as the advance guard of medical relief, is one of the most valuable contributions which any medical institution can make, and should be vigorously pushed in the interest of public health."

Dr. Bradford, in opening his remarks, referred to the fact that he had become connected with the medical staff of the Boston Dispensary forty years ago and that since then, though retired from service in the institution, he had followed its development with much interest. He spoke of the important function of dispensaries in educating medical students, pointing out that the type of medical teaching had greatly changed from the days when instruction was largely didactic to the present time, when dispensary clinics are utilized for giving medical students every opportunity for intimate observation of the sick and of the actual work of diagnosis and treatment. "One of the most valuable services to be rendered by dispensaries today," said Dr. Bradford, "is that of educating the community in the knowledge of hygiene. As many dispensaries reach thousands of patients annually, the power they may exert as educational agents may well be of great importance."

* See JOURNAL, page 613.

PROCEEDINGS OF THE BOSTON SURGICAL SOCIETY.

STATED MEETING HELD AT THE BOSTON MEDICAL LIBRARY, MARCH 1, 1915.

The President, Dr. GEORGE H. MONKS, in the Chair.

PERFORATION OF THE STOMACH AND INTESTINE BY FOREIGN BODIES THAT HAVE BEEN SWALLOWED.

Dr. FRANCIS S. WATSON read a paper with the above title. (See JOURNAL, page 622.)

Dr. DANIEL F. JONES: That Dr. Watson has had a most unusual experience, is shown by the statistics of the Massachusetts General Hospital. The catalog shows that between 1896 and 1914, there were twenty-six cases admitted to the hospital because of foreign bodies in the stomach or intestines. All of these cases except three were discharged well, without operation, while three were operated upon. One because of a hatpin which had perforated the stomach and stuck into the liver; the second was a hair pin which had perforated the duodenum, and the third was an open safety pin which had lodged at the cardia. The first two cases were operated upon successfully; the third case, a child of eleven months, died before the operation was complete, probably of enlarged thymus.

It was in 1886 that Dr. Richardson reported his case of removal of false teeth from the esophagus through a gastrotomy. At the same time he collected thirty-two cases of gastrotomy for foreign bodies, which had perforated the stomach. In fourteen of these, the stomach was uninjured; three died. In eleven cases, the stomach was injured and adherent; one died. In eight cases, the condition was not indicated; one died.

Friedenwald and Rosenthal, *New York Medical Journal*, July 18, 1903, were able to collect but ninety cases (including the thirty-two collected by Dr. M. H. Richardson) of gastrotomy for foreign bodies, which had perforated the stomach. Of these cases, six had caused an abscess of the anterior abdominal wall, and three, perforation with death.

Of nineteen cases operated upon in pre-antiseptic days, 21% died. Of seventy-one cases operated upon since then, 8% died after operation. They conclude that: "Operation should be insisted upon immediately after the foreign body is swallowed," which seems hardly consistent with the facts.

In looking over the *Index Medicus*, for the year 1913, I was able to find reports of but three cases of perforation of the intestine, two of the duodenum, one of the ascending colon.

While Dr. Watson's paper does not go into the subject of foreign bodies in the appendix, I cannot refrain from referring to the fact that a number of years ago, when looking up the cases of abscess of the liver, in which the appendix was the primary focus, I found that of one hundred cases, a pin was found in the appendix, in fourteen.

To me the most interesting group of cases due to perforation of the intestine by a foreign body is the group of actinomycosis of the abdominal wall.

Among eight cases of actinomycosis of the abdominal wall, at the Massachusetts General Hospital between 1896 and 1914, a fish bone was found in the mass, in three. While this is not a large number of cases to base an opinion upon, I believe that if a sufficiently careful search were made, a

foreign body would be found in every case, to have caused the infection, rather than infection from a simple ulceration.

DR. C. L. SCUDDER: I should like to report briefly one case of

ACTINOMYCOSIS OF THE ABDOMINAL WALL.

In May, 1905, a Swedish woman, 49 years old, entered my service at the Massachusetts General Hospital. She complained of abdominal pain and lumps. An abdominal tumor was felt in the region of the umbilicus. It was thought to be a tumor of the abdominal wall. The skin over the tumor was red and presented a small sinus. The tumor was about the size of a small orange, non-fluctuant and projected posteriorly into the peritoneal cavity. Actinomycosis was considered as a possible diagnosis but no actinomycetes were found in the discharging pus.

At operation the mass was removed including the whole thickness of the abdominal wall. The tumor was adherent to the transverse colon from which it was separated.

The tumor itself is of interest. It consisted of much fibrous tissue surrounding a fish bone two inches in length which lay at the bottom of the removed mass. The patient admitted that 12 years previously she had swallowed a good-sized fish bone. Evidently this fish bone which had been swallowed had perforated the transverse colon and the abdominal wall and was being extruded through the fistulous opening. Of very great interest is the fact that Dr. James H. Wright discovered in the pus in the bottom of this sinus actinomycetes. In other words, the fish bone which had traveled through the transverse colon had made an atrium for the entrance of the actinomycetes from the intestinal tract into the soft tissues of the abdominal wall.

In a study of actinomycosis Dr. Wright has called attention to the fact that probably actinomycetes bovis is a normal inhabitant of the gastro-intestinal tract of both man and animals. He also called attention to the fact, which this case so beautifully illustrates, that the part played by the foreign body is not that of a carrier of actinomycosis, but that the foreign body (the fish bone in this case) by its irritative and traumatic effect furnishes a nidus in the tissues and enters with the secretions of the gastro-intestinal tract producing the lesion called actinomycosis.

This case then is of interest and importance in connection with the paper of Dr. Watson, for it is a case of a foreign body swallowed which subsequently perforated the intestinal tract.

This patient was seen by me in 1914, nine years following operation, and, so far as the abdominal wall is concerned, is well. There is no sign of actinomycosis either in the abdominal wall or elsewhere.

DR. C. A. PORTER: I have had three cases of foreign bodies in actinomycosis of the sub-maxillary region, one a beetle's wing, one a toothpick, and one a piece of bone. This fact shows that there were actinomycetes in the mouth. Infection in all cases came from the buccal cavity. This is Dr. Wright's idea.

DR. DAVID CHEEVER: I have had two cases of perforation of the bowel of a type, which the reader has not mentioned, and very likely did not intend to include in his remarks. I refer to perforation occurring in a hernia,—not necessarily strangulated, but where the solid body finds it impossible to pass by the sharp angulation of the gut.

The first case was that of a Polish patient, admitted last summer to the Brigham Hospital, with the diagnosis of strangulated inguinal hernia. The history covered a period of five days. At operation, there was found an incarcerated, but not strangulated, inguinal hernia. The sac contained a large amount of pus, which communicated freely with the abdominal cavity, where there existed a general peritonitis. The source of the infection was due to the perforation of the bowel by a long slender bone,—probably the rib of a small mammal, which undoubtedly could have easily passed through the intestinal tract, had it not been for the sharp kink occurring in the hernial sac. Enterostomy and drainage of the peritoneum failed to save the patient, whose death two days after admission was due to the general peritonitis.

The second case was noted within the past week in the anatomical laboratory at the Harvard Medical School. Upon opening the abdomen, the clinical picture of intestinal obstruction was presented, almost the entire small intestine being markedly distended except for a small portion, which was totally collapsed. On further examination, a well-marked cavity in the wall of the pelvis was demonstrated, passing through the right obturator foramen into the adductor region of the thigh. The cavity was about 3 or 4 cm. in diameter and depth and a distended and collapsed coil of bowel was seen entering and emerging from it. Withdrawal of the gut was at first impossible until it was found that a small sharp bone, probably a splinter from a chicken bone, was impacted in the hernial cavity and had fixed a coil of bowel within it, at the same time perforating its wall and starting a local peritonitis. Here again, the bone would undoubtedly have easily passed through the intestine, had it not been for the sharp angulation at the above-mentioned point.

DR. MONKS: Dr. Watson has referred to his seeing professional glass-eaters in dime-museums while they were engaged in their business of eating glass. I remember that on one occasion a glass-eater in one of these museums gave me a special exhibition of his glass-eating abilities. Taking in his hand an ordinary claret glass he bit the edge off completely round the glass, and then chewed what he had bitten off. Finally, he pushed out his tongue, showing the broken glass fragments upon it. I noticed also, by the way, a drop of blood on the tongue close to these fragments. The man, after he had apparently swallowed the fragments, made no objection whatever to my making a digital examination of his mouth; but, although I inserted the tip of my forefinger into all the cavities of his mouth, one after the other, I could detect no glass whatever, and was forced to the conclusion that the fragments had actually been swallowed.

DR. WATSON: In reference to the cases spoken of by Dr. Cheever I would like to say that there have been reported about twenty such cases in incarcerated or strangulated hernia.

NEEDLE FRAGMENTS IN THE TISSUES LOCALIZED BY MEANS OF MAGNETISM.

DR. MONKS exhibited several fragments of needles which he had removed from patients, having previously localized these fragments by means of a magnetic indicator while they were still within the tissues. The fragments, which were mounted in a box under a glass cover, were passed about for examination, a little magnetic indicator being passed with

them. Each member was, therefore, able to test for himself the attractive force exercised by the fragments upon the indicator.

ANNOUNCEMENT.

DR. MONKS: I want to say a few words to the Society concerning a matter which I am sure will be of interest to them. One of the functions of the Philadelphia Academy of Surgery is to award every five years the Samuel D. Gross Prize, of \$1000, "to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subject in Surgical Pathology or Surgical Practice, founded upon original investigations, the candidates for the prize to be American citizens." I think we must all agree that it is advantageous for any surgical society to have some such connection with the past, some worthy source from which it may gather inspiration for work in the future. This idea is, I think, beautifully expressed in a bas-relief in the reception room of President Lowell's house in Cambridge. This bas-relief represents a young man, who, about to spring forward, reaches to receive a lighted torch from the outstretched hand of an old man who has about run his course!

Although some of the members of the Boston Surgical Society are well along in years, yet the Society itself is of such recent formation, that, in a sense, it may perhaps be looked upon as youthful, and as therefore ready to receive from the past the responsibility of being one of the channels through which the high ideals and traditions of the past may be transmitted to the future.

As Boston has been a center of surgery ever since the days of ether, and even before, and as the surgery in those days was done by men whose character and achievements have reflected great credit and dignity upon Boston, it seems most desirable that some definite connection with this group of men should, if possible, be established. As no one could represent them better than Dr. Henry J. Bigelow, it gives me much pleasure to announce that Dr. Wm. Sturgis Bigelow has offered to establish a prize in the form of a gold medal, in memory of his father, Dr. Henry Jacob Bigelow, to be awarded from time to time by The Boston Surgical Society for valuable original work in surgery or connected with it.

What action will the Society take in this matter?

DR. SCUDDER: We have associated ourselves together as The Boston Surgical Society, an exclusive body, limited in membership, for the promotion of the art and of the science of surgery, and of professional good fellowship.

We are to be congratulated that our Society has been honored by being chosen custodian of the Henry Jacob Bigelow Medal—for the custodianship of this medal will contribute to the permanence of the Society, and the award of this medal will undoubtedly be a factor in furthering productive surgical investigation.

Therefore, Mr. President, I offer this motion:

That this trust be accepted;

That the Council of the Society be requested to forward an appropriate letter of acceptance to Dr. W. S. Bigelow, the donor, expressing the appreciation of the Society;

And, that the Council formulate the conditions concerning the award of the medal, which, after proper discussion by the Society, shall be submitted to Dr. Bigelow for his approval.

DR. PAUL THORNDIKE spoke of the gift as a fitting tribute from a generous son to a famous father, and stated that the Society should feel itself honored to be named the administrator of such a gift. He seconded Dr. Scudder's motion, and stated that he hoped that the Council would take every care to invest the gift with the dignity and the authority its importance deserves.

DR. WATSON: I am very glad, Mr. President, to have the opportunity to pay my tribute to the distinguished father of Dr. Wm. Sturgis Bigelow, who has made this generous offer to the Society.

If one recalls the pictures of certain international Medical Congresses, there stands out from their members one group of men. This group is composed of Pasteur, Lister, Virchow, Von Langenbeck, Sir William Macewen, Sir William McCormac, and Henry J. Bigelow. To my mind these were the most distinguished and notable figures in these gatherings; and, in certain respects, Dr. Bigelow was to be counted among the foremost of them.

Dr. Bigelow possessed certain attributes that gave him a distinction almost unique. Among them was an intellectual acumen such as one rarely meets with. The most striking characteristic of his mind was its remarkable and unerring manner of seizing upon the essential point of any problem, and of concentrating his attention upon that point until he had established it to his satisfaction in all its bearings. When a proposition interested him he spared no pains in perfecting the less essential details of the matter. Sometimes, however, he would rest content with having solved the vital part of the problem, and would turn over the detail of it to be worked out by some one else.

As a teacher, one of his most telling powers was that of graphic, often dramatic, expression, and of terse epigrammatic phrase. One of the evidences of the value of this way of bringing home to his students the truths he desired to impress upon them may be seen in the fact that of the words of all the teachers from whom I have received instruction, his are the only ones that I can today, after an interval of thirty odd years, repeat verbatim. Few of those who heard his terse summing up of the methods for treating the arm after reduction of a dislocated shoulder will ever forget the few words that he used to describe them at the end of one of his lectures: "Gentlemen," he said, "many pages have been written and many illustrations have been made to show how the arm is to be treated after reduction of a dislocated shoulder. The whole thing consists in this: Pad in the axilla, elbow to the side, arm in a sling. Good morning, gentlemen!"

As an operator his co-ordination of mind and hand was more perfect than that of any other surgeon it has been my fortune to see. He added grace and an unerring precision of movement to his other qualities, and thus made his operative work yet more impressive.

His sense of touch and the clearness of his mental vision gave him a power of making, almost instantly, diagnoses that others failed to make even after careful study.

Apart from these attributes he had a commanding personality, and always "looked the master."

It is a fortunate thing for this Society to have such a man commemorated, as he will be by this gift made by his son. This gift should serve as a stimulus to greater endeavor, on the one hand; and, as a link with the past and with the man who was

the foremost and most remarkable of American surgeons in his day. I hope that a fitting expression of our appreciation of this generous gift will be made to Dr. Wm. Sturgis Bigelow. The motion was then put to vote, and was unanimously carried. The meeting was then adjourned.

Book Reviews.

Diseases of the Bronchi, Lungs and Pleura. By FREDERICK T. LORD, M.D. Illustrated with 93 engravings and 3 colored plates. Philadelphia and New York: Lea and Febiger. 1915.

Dr. Lord has written an admirable book which has a definite place in medical literature. There have appeared recently many works in English on the diseases of the heart, but there has been no satisfactory previous work in English on diseases of the bronchi, lungs and pleura. Dr. Lord has been very wise in omitting discussion of pulmonary tuberculosis under a special heading but, of course, pulmonary tuberculosis is adequately discussed in its relation to other conditions. Tuberculosis of the lungs is of such importance that by common consent it forms a special field of its own. One of the most satisfactory features of the book is the excellent subdivision of the discussion; rare conditions are adequately and thoroughly discussed, but always with due regard to their frequency and importance. One cannot fail to be impressed with the thorough consideration of the literature, always backed up, however, by the writer's extensive clinical experience and his own researches. There is abundant use of pathological material. The form of presentation is clear and concise and the book can be heartily recommended as an authoritative exposition of the subject.

Practical Text-Book of Infection, Immunity and Specific Therapy, with Special Reference to Immunologic Technic. By JOHN A. KOLMER, M.D. With 143 original illustrations, 43 in colors. Philadelphia and London: W. B. Saunders Company. 1915.

Dr. Kolmer states in his preface that the purpose of the book is three-fold, namely: "(1) To give to practitioners and students of medicine a connected and concise account of our present knowledge regarding the manner in which the body may become infected, and the method in turn by which the organism serves to protect itself against infection or strives to overcome the infection if it should occur, and also to present a practical application of this knowledge to the diagnosis, prevention and treatment of disease. (2) To give to physicians engaged in laboratory

work and special workers in this field a book to serve as guide to the various immunologic methods. (3) To outline a laboratory course in experimental infection and immunity for students of medicine and those especially interested in these branches." On the whole the writer has carried out his purpose well. While he has discussed the various theoretical considerations, yet the main emphasis is upon the established facts and the practical data of this complicated field. Dr. Kolmer has the very great advantage of having given a course covering this same field in the Medical School of the University of Pennsylvania. Consequently, he is perfectly aware of the confusing complexity of many aspects of the subject. His explanations are simple, direct and intelligible. It is a clear exposition of a difficult subject, which is even more complex because our knowledge of it is so recent and so little digested. The book will appeal especially to those who desire to know the general principles of immunity and to secure adequate information about the various reactions and to those who desire to have a standard reference book which will assist them in immunological research.

Text-Book of Surgical Operations. Illustrated by Clinical Observations, for Physicians and Students. By PROF. FEDOR KRAUSE, Privy Medical Councillor; Directing Physician Augusta Hospital, Berlin, in association with EMIL HEYMANN, M.D., Chief Physician, Augusta Hospital. Translated into English and edited for American readers by ALBERT EHRENFRIED, A.B., M.D., F.A.C.S.; Assistant Visiting Surgeon, Boston City Hospital; Junior Assistant Surgeon, Children's Hospital; Surgeon, Boston Consumptives' Hospital; Assistant in Surgery, Harvard Graduate School. In six volumes. Vol. I.

It will seem to many Americans a little strange to read that Fedor Krause, one of the best and boldest operators of the world, is known in Berlin as the "Directing Physician" of the Augusta Hospital, and that his associate in the publication of this most extensive of operative surgery text-books, is the "Chief Physician" of the same institution; it is a little like going back to the old days when the surgeon was almost unknown.

Krause is universally acknowledged both as a general surgeon, and as an authority upon surgery of the head; upon the latter subject he has published three volumes, the last of which was reviewed in the BOSTON MEDICAL AND SURGICAL JOURNAL two years ago. Three volumes limited to the head, would seem to warrant at least six covering the surgery of the entire body. Unfortunately, the average man will be disinclined to buy for himself so large a work, and the six

volumes will be more limited in their circulation than their worth would justify.

Krause believes that specialism in surgery is not desirable; he makes this definite statement in his preface; he has written what he calls a text-book of operative surgery, illustrated by actual cases, with symptoms, operative detail, after-treatment, result, and notes of autopsy in fatal instances. This method necessarily adds interest and zest to what have often been in the past dry and detached descriptions. Gynecology, ear, nose and throat operations all become part of an enormous whole, and a painter (Max Landsberg) provides illustrations with reckless prodigality, from sketches made during the actual operations; these pictures are reproduced by a most finished lithographic (German) process, and necessarily add to the expense of the book; they stand to the text in the same relation as Broedels' pictures in America—as actual works of art.

The first four chapters consider the Preparation for Operation, Anesthesia, Asepsis, and devote a few pages to after-treatment; next appears a chapter upon Wounds and Fractures of the Face and Skull; Plastics of the Face, an exceedingly interesting chapter; Surgery of the Eye, Ear, Nose and Throat; Surgery of the Trifacial Nerve, and Extirpation of the Gasserian Ganglion. This completes the first volume of 250 pages.

Our grateful thanks go to the publishers for the flat soft paper and the large clear type, as well as for the excellent and practical binding of the book; and particularly to the translator, Ehrenfried of Boston,—a young man of ability and tireless activity, to whom we owe the English translation, which preserves so well the spirit of the original.

The book, of course, takes its pace immediately as one of the very best of the many good text-books of German Operative Surgery.

A Laboratory Manual and Text-Book of Embryology. By CHARLES W. PRENTISS, A.M., Ph.D. Octavo of 400 pages with 368 illustrations, many of them in colors. W. B. Saunders Company. 1915.

Since the appearance of Minot's work on embryology, this laboratory manual is the most important contribution which has been made to the text-book literature on this subject. It follows the general method of Minot's book and especially elaborates the study of pig embryos, with dissecting methods based on the work of Drs. Minot, Lewis and Thyng. The chapters on human organo-genesis are partly based on Keibel and Mall's "Human Embryology." The volume is beautifully illustrated with 368 figures, many of which are colored. It is a valuable addition to the literature of this fascinating subject whose development has been so notably the work of American medical science.

Papers on the Influence of Smoke on Health.

Edited by OSCAR KLOTZ and WM. CHARLES WHITE, Mellon Institute of Industrial Research and School of Specific Industries, University of Pittsburgh. 1914.

This bulletin (No. 9) of the Mellon Institute of Industrial Research represents the smoke investigation conducted under its auspices at the University of Pittsburgh. The papers represent the work done by several physicians and laboratory investigators. Mr. Cohoe considers first the relation of atmospheric smoke and health. Mr. Oskar Klotz studies the subject of pulmonary anthracosis (misprinted arthracosis), which he regards as a community disease. Mr. W. L. Holman studies the bacteriology of soot, which he concludes to have a definite bactericidal action, due not only to the contained acids, but to some other agent, probably a phenol. Dr. Samuel R. Hathorne (whose name is also misprinted) presents some histological evidence of the disease importance of pulmonary anthracosis, which he regards as not in itself detrimental to health in an otherwise normal lung. In acute inflammatory conditions he believes it is seriously detrimental from its obliteration of lymphatics, but in tuberculous lesions it is either passive or actually assists healing by providing an additional stimulus to fibrosis and encapsulation, thus aiding the localization of the process. This article is illustrated by twenty photomicrographs. Dr. William C. White and Messrs. C. H. Marcy and Paul Shuey present brief statistical reports on the influence of varying densities of city smoke on the mortality from pneumonia and tuberculosis and on the influence of smoke on acute and chronic lung infections. The two latter papers are reprinted from previous publications. This research report as a whole is interesting, but unfortunately has the appearance of having been hastily printed without careful proof-reading.

Text-book of Massage. By A. MÜLLER, M.D., Munich. Bonn: Marcus and Webers. 1915.

This admirable German text-book of massage presents at length, for those who can avail themselves of it, a complete treatise of the latest theories and technic of this important subject. It is illustrated by 341 outline anatomic cuts after original drawings by the author. The text accompanying each of these full-page illustrations describes schematically the purpose of the manipulation, position of patient and physician, the tissues involved and the technic of the procedure. Such a work is, from its nature and method, more complete, though for the most part not so available to American practitioners, than many of the admirable English works, notably that of Dr. Douglas Graham, which have appeared in recent years.

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PUBLIC HEALTH ADMINISTRATION IN NEW YORK.

In another column of this issue of the JOURNAL we are glad to publish the address on dispensaries as a growing factor in curative and preventive medicine, delivered at a conference held in this city in January under the auspices of the board of managers of the Boston Dispensary, by Dr. S. S. Goldwater, commissioner of health of New York City. The growth of dispensary work in recent years has been one of the notable facts in the development of medical institutions. In many of the larger cities from one-fifth to one-third of the population are annually patients at various such institutions. While the importance of dispensaries in the cure and prevention of disease is becoming more fully recognized, not only by patients but by physicians, their growth has been so rapid and so recent, that their standards are as yet less well defined than those in many similar fields of ser-

vice. In recognition of this condition, this meeting was arranged for the consideration of dispensary work in its relations to medical science, social service, public health and education.

Dr. Goldwater, as superintendent of the Mt. Sinai Hospital of New York first gave his institution a place among the leading hospitals of the country and by promoting higher standards of dispensary service became a leader in the domain of public medicine. In his address Dr. Goldwater describes in detail the growth of the New York Dispensary system and discusses the subjects of administrative and clinical efficiency.

Later as health commissioner of New York City, Dr. Goldwater has earned distinction in constructive work for the the promotion of public health. Perhaps the four most notable aspects of his work in this capacity in New York City have been, first, the establishment of full-time service on the part of all bureau chiefs and department officials; second, public education in hygiene and methods of right living; third, the establishment of an advisory council to co-operate with the health commission and act as intermediates between the latter and various other agencies of public activity such as insurance companies and settlement and social workers; and fourth, the improvement of public transportation by the prevention of overcrowding and the requirement of ventilation and cleanliness in all public conveyances.

In this conjunction it is of interest to compare the public health administration of New York State with that of New York City. In 1913 a law was passed establishing a public health council, a sanitary code, and providing for the enforcement of the code by twenty sanitary supervisors having jurisdiction over as many districts.

"The Public Health Council consists of the Commissioner of Health and six members appointed by the Governor. The law provides that three of the appointive members shall be physicians experienced in sanitary science, and another of the appointive members a sanitary engineer. Dr. Simon Flexner, Director of the Rockefeller Institute; Dr. T. Mitchell Prudden, Vice-President of the Board of Scientific Directors of the Rockefeller Institute; Dr. Wilhelm Gaertner of Buffalo, and Dr. Hermann M. Biggs, Commissioner of Health, constitute the four physicians of the Council. Professor Henry N. Ogden of Cornell University is the Sanitary Engi-

neer appointed by the Governor. Mrs. Elmer Blair of Albany, President of the General Federation of Women's Club, and Homer L. Folks, Secretary of the State Charities Aid Association, complete the membership.

"The Public Health Council has no executive, administrative, or appointive duties. Its chief functions are 'to establish, and from time to time amend sanitary regulations,' to be called the Sanitary Code, and 'to prescribe by regulations the qualifications of Directors of Divisions, Sanitary Supervisors, local Health Officers hereafter appointed, and public health nurses.'"

The system of public health administration, thus designed, may fairly be regarded as ideal and has already been imitated in the state health commissions of Kansas, Maryland, Massachusetts, Michigan, New Jersey, and Texas. Unfortunately it has no sooner been hardly more than established in New York, than it is attacked by a series of five bills introduced into the General Assembly at Albany by Representative Hinman, radically amending the new law. These proposed amendments were described as follows in the *New York Times* of Sunday, April 11:

"The Hinman amendment of Assembly Print 1940 reduces the number of Sanitary Supervisors to ten, cuts the salary from \$3000 to \$2500, and makes the establishment of their districts discretionary instead of mandatory. Similarly, another Hinman bill, Assembly Print 1835, makes discretionary instead of mandatory the establishment of the divisions of the department, namely, those of child hygiene, public health nursing, tuberculosis, vital statistics, communicable diseases, administration, health education, sanitary engineering, and laboratories and research. The Commissioner is empowered by the amendment to eliminate or combine any of these divisions.

"The Hinman amendment, Assembly Print 1942, abolishes the duties of the Council in prescribing the qualifications of experts to be appointed to the more responsible positions requiring technical experience in sanitary science.

"Assembly Print 1943 amounts to the virtual abolition of the other important function of the Council relating to the sanitary regulation. Within the last year the Council has established seven chapters of the Sanitary Code, containing 119 regulations relating to the control of the spread of communicable diseases, maintenance of sanitary standards for milk and cream, the

practice of midwifery, conduct of labor camps, prevention of nuisances, and miscellaneous practices.

"The Council now has power to amend these regulations if the necessity arises. The present health law provides that these regulations, as soon they are established by the Council, become operative without legislative action. Mr. Hinman's amendment takes away all the legal effect of these sanitary regulations. The amendment reads: 'All such regulations, including those heretofore embodied in the Sanitary Code, shall be reported by the Council to the Legislature for approval or rejection in whole or in part.'

"The Hinman amendment provides that in emergencies, such as epidemics, the sanitary regulations of the Council shall for a time have the force and effect of law, without the approval of the Legislature. The legal effect of such emergency regulations ceases ten days after the opening of the Legislature.

"Opponents of the amendment contend that the most important phase of modern sanitation is not so much the control of epidemics after they have started as the prevention of their occurrence. As contrasted with the present law, the Hinman amendment fails to provide for the development of this larger field of preventive medicine, for prevention requires action to forestall emergencies.

"The fifth Hinman bill requires the Commissioner and the directors of each of the different divisions 'to devote his entire time to the duties of his office.' It is contended that the enforcement of this would bring about the retirement of the present Commissioner, Dr. Hermann M. Biggs. For more than twenty-five years Dr. Biggs was identified with the New York City Health Department until he accepted the appointment as State Commissioner of Health. Under his technical leadership as Chief Medical Officer the death-rate of New York City was reduced below that of the State at large. Comparison of the vital statistics of the city and the rural communities show that in very recent years the progress of medical science has made it possible in enlightened communities, however crowded or populous, to secure by intelligent sanitary regulation and education, a reduction of the death-rate below that of rural communities."

In his recent thirty-fifth annual report, Dr.

Biggs commented particularly on these facts, and in continuation spoke as follows of the paramount importance of public health education in securing their benefits for the communities:

"Simple measures in the main—difficult in their application to large masses of the population only because they involve public health education—will assure these benefits. The education of the public to the risks of neglect, and to the advantages and ways of healthful living, is necessarily a slow process. For its successful accomplishment by the sanitary authorities, the requisites are adequate funds, broad powers, and an efficient organization carrying guidance and inspiration into every school, workshop, store, and factory, as well as into every home, whether in the city, town, or remotest countryside.

"Health and education should go hand in hand and on the same plane; but while millions are devoted to education, only thousands are spared for health. A hundred millions are spent by the State on a large canal; another hundred millions on good roads; tens of millions on institutions for the care of mental and physical derelicts, while a few hundreds of thousands only are devoted to the promotion of health. This is not said in criticism of these larger and perhaps justifiable public expenditures, but to emphasize the newly recognized necessity which the welfare of every citizen involves."

The admirable public health which is being done under Dr. Goldwater in New York City, and under Dr. Biggs throughout the remainder of the State, should not be hampered at this juncture by meddlesome and mischievous legislation. It is earnestly to be hoped that the present political attempt to do so may meet with the decisive defeat which it deserves.

AN ANTITYPHUS VACCINE.

THE experimental work of Anderson and Goldberger and of others, more particularly Nicolle and Conseil, demonstrated a solid basis for the conclusion that the virus of typhus fever is present in the blood, at least throughout the febrile period. A number of months ago Dr. Henry Plotz, a young bacteriologist connected with the Mount Sinai Hospital, New York, re-

ported the discovery of the specific micro-organism of typhus, and at a meeting of the New York Pathological Society held on April 15, 1915, not only was this discovery abundantly confirmed, but announcement was made by Plotz that he had succeeded in preparing an antityphus vaccine of similar character to the antityphoid vaccine, the prophylactic value of which is now so generally recognized. Its efficacy cannot as yet, of course, be regarded as established, since there has been no opportunity for testing it practically. It is a fact, however, that just previous to sailing, Dr. Hans Zinsser, professor of bacteriology in Columbia University and also president of the Pathological Society, together with other members of the Rockefeller Institute expedition to combat typhus in Servia, were inoculated with the vaccine. Plotz himself was the first person to be vaccinated.

After Anderson and Goldberger had announced their experimental researches showing that Brill's disease and typhus were identical, Plotz, while still a medical student at Columbia, became deeply interested in the subject, and after his graduation, in 1913, began a line of original investigations in the bacteriological department of Mount Sinai Hospital. He had the opportunity of examining the blood of a considerable number of patients suffering from Brill's disease, and it was not very long before he succeeded in isolating a bacillus which he demonstrated, by results noted from the inoculation of guinea-pigs and monkeys, to be the causative agent of the disease. As Dr. Libman, associate pathologist to Mount Sinai, expressed it at the meeting of the Pathological Society, "The discovery was no chance discovery. Dr. Plotz came to the hospital to discover the cause of Brill's disease, and he did it at the first try." Not long after this, through the courtesy of Dr. O'Connell, Health Officer of the Port, Plotz obtained in the Quarantine hospital specimens of the blood of several typhus patients, who had brought the disease from Europe, and from this blood isolated a bacillus which proved to be identical with that found in Brill's disease. Apparently, the two diseases, which differ so greatly in severity, are caused by two strains of the same microbe. The name, Brill's disease, will therefore be abandoned, and it is possible that the affection which has been so designated will now be known as endemic typhus, in contradistinction to epidemic typhus, the classic formidable

disease. At the meeting Dr. Brill himself expressed the opinion that this was the first work which had absolutely established the identity of the two types of typhus fever, stating that while he had long ago admitted that the two diseases were related, he had always contended that their identity had not been proved by the experiments of Anderson and Goldberger. Dr. William H. Welch of Johns Hopkins was asked to name the newly acknowledged micro-organism, and he gave it the designation, bacillus typhi exanthematosi.

That this bacillus is the causative agent of typhus, established by incontestable scientific proof, is accepted as final, as is shown by the fact that the discovery has received the endorsement of such men as Noguchi and Meltzer of the Rockefeller Institute, William H. Park, head of the research laboratories of the New York City Department of Health, and Mandelbaum and Libman, pathologists to Mount Sinai Hospital. All these were present at the meeting and warmly congratulated Dr. Plotz and the two other investigators associated with him in his work, Drs. P. K. Olitzky and George Baehr; and Noguchi was the first to express his gratification at what had been achieved. This was the first announcement of the discovery before a scientific body, and it cannot but be acknowledged that the achievement is one reflecting the highest honor on American medicine. Dr. Plotz is a native of Paterson, N. J., and it is certainly remarkable that so important a contribution to science should have been made by one only now in his twenty-fifth year. Should the typhus protective vaccine prove to afford the same immunity as is observed in the case of that against typhoid, the good it may accomplish is almost incalculable.



THE MEDICAL PROFESSION AN AGENT FOR PEACE.

INTERNATIONALIZING of the medical profession, already favored by medical congresses and the modern facility of travel, has been well advanced by the present war in Europe. Physicians now serving in the armies on the continent treat friend and foe alike. Are they not the only real neutrals who are engaged in the struggle? Men skilled in mathematics, physics, chemistry and other practical sciences are vying with

each other to perfect methods of destroying life and property on a scale never before seen in the history of the world. Lawyers are engaged in setting forth the justice of the cause of one or the other nation and in furnishing arguments for their moral or commercial advantage. The clergy is divided in its sympathies, and its ability to minister to the religious needs of all is impaired because of the many sects into which the Christian church is split and the diverse partisan considerations arising out of such an ununited state. The peace societies and the propaganda of Mr. Carnegie and others have been unsuccessful in averting war or in mitigating its severity. Even the men of letters are ranged on one side or the other and are striving in their worship of a national ideal to forget their belief in a universal God.

There are highly cultured and civilized men and women among the people of all nations, and individual morality and right living have progressed to a higher plane in recent times. The morality of nations, however, is about where it was in the days of Caesar when physical might meant right.

Surgery, medicine, bacteriology, hygiene, have never been employed for other purpose than the saving of life. They have no national ambitions, no national ideals; they belong to all. May this not be the time for them to march to the battle against self interest and militarism with the vision of a modern Emperor Constantine, "*In hoc signo vinces*" and a red cross.

Groups of eminent American medical men are now giving their services in England, in Paris, in Berlin, in Vienna, in Petrograd and in Servia, caring for the wounded, assisting in the problem of sanitation and in stamping out epidemics of infectious disease. The profession of medicine represents humanity as a whole; its aim is solely the alleviation of suffering and the preservation of life. It is opposed to war and to killing and maiming.

In a recent issue of *Science* Dr. S. J. Meltzer, of the Rockefeller Institute, suggests that the medical profession of the United States, a neutral nation, take the initiative in forming a medical brotherhood devoted to international morality, appealing to the physicians of the belligerent nations to join after the war is over. Perhaps such an organization might be able to teach that although life is a perpetual strife, the fittest may achieve survival by other means than by bloodshed.

ORGANIZED OBSTETRIC AND PREGNANCY CARE IN MASSACHUSETTS.

THE experience of those who have studied conditions of the law in Massachusetts shows that approximately five hundred midwives are practicing in Massachusetts today, and that a large proportion of these are unclean and inefficient. The fact that this is the case reflects distinctly on the medical profession and brings up the question whether practicing physicians properly appreciate the needs of the community and are endeavoring to meet them. If this is the case, why are these midwives allowed to exist?

It is recognized, however, that they cannot be eliminated until a better service is provided by the medical profession. The people in their ignorance of medical affairs feel that they need just such a service as the midwife provides. Is the medical profession endeavoring to show that the people really need a better service?

The article on the Care of Prospective Mothers in this issue of the JOURNAL is put forward by the medical profession, and others in the state, as one method to meet this situation. The only objection, so far as we know, which is raised against the development of such work in the interests of the public, is that it makes an organized effort to meet this condition, and some doctors feel opposed to this organization because it may take away from them a certain amount of their practice. Even if appeal is made to the selfish motives, there is another way of looking at this scheme.

It ought to be clearly recognized that any scheme which leads people to appreciate better service offered by doctors would lead to the more general use of the doctors for obstetric cases. The profession will have to give at first a certain amount of service in developing these clinics, but this will be returned to the medical profession many fold.

Still another result of such organization of obstetric work would be abundant material for teaching obstetrics to the young practitioners of any locality through a properly organized and supervised service, which is the only way obstetrics can be thoroughly taught. The men allied with these clinics might become recognized in each community as being competent in obstetrics. The incompetent would naturally work in other lines. Thus a better class of obstetric practitioners would develop in each community, and the medical profession gain prestige.

THE BOSTON SURGICAL SOCIETY AND THE HENRY JACOB BIGELOW MEDAL.

THE BOSTON SURGICAL SOCIETY, an organized and incorporated body whose membership represents the hospitals of Boston, is to be congratulated; for to it has been offered by Dr. Wm. Sturgis Bigelow, of Boston, the privilege of awarding from time to time a medal to that individual, who, in the opinion of the Society, makes such notable contribution to the science or the art of surgery as to be entitled to receive it. Dr. Bigelow intends to deposit an adequate fund for this purpose. The medal is to be known as THE HENRY JACOB BIGELOW MEDAL, in memory of the donor's father.

It is hardly necessary to add that the stewardship of the Bigelow medal has been accepted by the Society with enthusiasm. In the report of the transactions of the Society, which appears in another column of this issue of the JOURNAL, is published a statement about the medal made to the Society at the time of the presentation of Dr. Bigelow's offer. Certain conditions concerning the award of the medal are as yet undecided, but it is expected that they will be announced shortly, and further information about them will be duly presented in the columns of the JOURNAL.

MEDICAL NOTES.

NEW YORK DEATH-RATE.—Among those causes of death that swell in great measure the mortality returns, there was not a single one during the past week that did not show an increase in the number of reported deaths as compared with the returns for the corresponding week of the year 1914.

The most notable increases were among the following causes: lobar pneumonia, in which the increase was practically double, as was also that from acute bronchitis. The number of deaths from broncho-pneumonia increased about 30%, from pulmonary tuberculosis 35%, from organic heart disease about 17%, from chronic Bright's disease about 12%.

The number of deaths reported during the week was 1778, as against 1566 during the corresponding week of 1914, the death-rate increasing from 14.63 to 15.98 per one thousand of the population.

The death-rate for the first sixteen weeks of 1915 was 14.66 per one thousand of the population, as against a rate of 15.47 during the corresponding period of 1914, a decrease of .81 of a

point; the decrease in the death-rate for this year up to the last week of March was 1.5 of a point, so that the effect of the increased virulence of influenza during the past three weeks has been to change this decrease in the death-rate by almost 50% from Jan. 1 to date.

RADIUM INSTITUTION IN MANCHESTER (ENG.).—It is reported in *Nature* that the movement for the establishment of a radium institution in Manchester has received hearty support from the public and the press. The committee appointed to carry out the scheme collected about £30,000. One thousand pounds was spent in equipping several rooms for the use of the department in the Royal Infirmary and 800 milligrams of radium metal, costing about £21,000, were purchased from an American firm. The standardization of the radium was done in the laboratories of the University of Manchester. The committee is now arranging to distribute the radium, either in solid form as applicators, or as emanation tubes from the liquid form, to the other hospitals in Manchester and the district.

LONDON DEATH RATES IN FEBRUARY.—Statistics recently published show that the total death rate of London in February, 1915, was 20.7 per thousand inhabitants living. Among the several districts and boroughs the highest rate was 24.8 in Bermondsey, a populous southern slum, and the lowest was 15.8 in Hampstead, an open residential district on the north.

FRENCH VITAL STATISTICS.—Report from Paris states that on April 16, the vital statistics of France for the first half of 1914 were published. During that period there were 2000 fewer marriages, 4000 more births and 20,000 more deaths than during the corresponding period of 1913. The net diminution in the population of France during this time was about 17,000, while the population of Germany increased nearly 500,000 during the same period. This six months' period is the last in which what may be considered as normal peace conditions prevailed in France. Subsequent statistics will show not only the preëxisting trend of the population, but the effect of the European War upon all forms of vital statistics.

BUBONIC PLAGUE IN HAVANA.—Report from Havana states that on April 19 three cases of bubonic plague were discovered in Vedado, a fashionable suburb of the city. This focus of infection, which appears confined to a small group of houses has already been isolated.

SMALLPOX AT SAN FRANCISCO.—Report from San Francisco states that on Apr. 19 a case of smallpox was discovered aboard the steamship *Chiwo Maru*, which arrived at port on that day. The patient was isolated and 336 passengers on the steamer were vaccinated.

NEW YORK DRUG LAW.—Report from Albany, N. Y., states that on April 17 Governor Whitman signed a bill so amending the present state drug law as to make it a felony instead of a misdemeanor to sell habit-forming drugs to persons under sixteen years of age.

MEDICAL SOCIETY OF THE MISSOURI VALLEY.—The spring meeting of the Medical Society of the Missouri Valley was held at Omaha, Neb., on March 25 and 26, under the presidency of Dr. Granville Ryan of Des Moines, Iowa, with an attendance of over three hundred members and guests. Addresses were presented by Dr. F. H. Albee of New York on bone grafting; by Dr. C. S. Williamson of Chicago on cardiac overstrain; by Dr. Paul Paquin of Kansas City on early symptoms of tuberculosis; by Dr. Reuben Peterson of Ann Arbor on craniotomy; by Dr. A. A. Law of Minneapolis on the status of the autograft, and by Dr. E. G. Blair of Kansas City on goitre. It was voted to hold the fall meeting of the society in Des Moines.

PYGOPAGUS AND XIPHOPAGUS.—The local interest recently excited by a case of pygopagus twins at the Children's Hospital is paralleled by that in a case of xiphopagi reported on April 19 from Houston, Texas. The Texan twins, like those in Boston, are three years old and are reported to be equally well developed. They were born in Havana of Spanish parentage. It is stated that the operation of xiphopagotomy is soon to be performed upon them.

LEGACY TO BUREAU OF SOCIAL HYGIENE.—The will of the late Mrs. John D. Rockefeller, which was filed in New York City on April 17, contains a residuary bequest to numerous charitable and educational institutions, including the American Bureau of Social Hygiene.

YELLOW FEVER IN LOUISIANA.—Report from Morgan City, La., states that on April 15 two cases of yellow fever were discovered in that port aboard the schooner *Colwell*, recently arrived from Demerara, British Guiana. One member of the crew had died on March 25 and was buried at sea. The two remaining cases have been isolated.

NATIONAL ADMINISTRATION OF NEW YORK QUARANTINE.—On Tuesday evening of last week, April 20, a meeting was held at the New York Academy of Medicine for the purpose of urging that the quarantine station of the Port of New York, now in the hands of the New York State Government, be transferred to the United States Public Health Service, a step which the present conditions in Europe make especially important at this time. At this meeting Mr. Henry James, Jr., who has recently returned from an official tour of inspection through the belligerent countries of Europe, made the opening address on "Present health conditions in Europe, and their

relation to this country." Dr. William C. Woodward, health officer of the District of Columbia and former president of the American Public Health Association, spoke on "The menace of inadequate quarantine and the meaning of an efficient quarantine to the entire country"; and the Hon. William H. Taft on "The relation of the national government to quarantine and other public health agencies."

EUROPEAN WAR NOTES.—On April 17 the war relief commission of the Rockefeller Foundation published a report of its investigation of present conditions in Serbia, where typhus, typhoid, recurrent fever, smallpox, scarlet fever and Asiatic cholera are present. It is estimated that there are in Serbia at present from 25,000 to 30,000 cases of typhus fever, from which there are 100 deaths daily in Nish alone.

"One day during the visit of the commission it was reported that the cemetery at Nish contained 250 unburied bodies of typhus victims, the force of grave diggers being entirely unable to keep up with the work.

"In Belgrade, in one hospital were 165 cases of typhus, with a larger aggregate number in several other hospitals.

"In Skopje, Dr. Barrie, an English physician who has been in Skopje several months at the head of a medical mission of the British Red Cross, estimated the number of typhus cases on Feb. 24 at 2000.

"Valjevo, a town in that part of Serbia which was for a time held by the Austrian army, is reported to be the most serious centre of the epidemic of typhus. Substantially the entire civilian population there are involved in the disease. Without medical care, with no direction or resources for setting on foot sanitary measures, remote and helpless, the population is being decimated, while the epidemic spreads in rapidly widening circles. Every community on the main lines of travel is in the clutches of typhus. Into the mountain places and the villages distant from the railroads the disease is being carried by the moving troops and bullock drivers and by the straw-lined carts in which the sick and the well are transported, and it is said to be prevalent in most of them already."

On April 27, two additional Red Cross hospital units, consisting of six surgeons and twenty-four trained nurses, sailed from New York for Liverpool aboard the American line steamship *St. Louis*. These units will be attached to the Belgian Army and will be stationed for six months' duty at the Ocean Hospital at LaPanne. The surgeons are Drs. Albert R. Goodman of New York, Robert W. Hinds of Buffalo, William H. Morriss of Baltimore, John D. Spellman of Cincinnati, William T. Fitzsimmons of Kansas City and Earl V. Morrow of Portland, Oregon. Dr. James E. Daniel of Greenville, S. C., also sailed on April 17 for duty at the American Women's Hospital, Paignton, Devonshire, England.

At the meeting held in the Boston Medical Library on April 14 the sum of \$7,200 was raised for the Belgian Red Cross.

EUROPEAN WAR RELIEF FUNDS.—On April 24 the totals of the principal American relief funds for the European War reached the following amounts:

	N. Y.	N. E.
Belgian Fund	\$1,023,174.92	\$252,855.25
Jewish Fund	617,747.53	58,824.23
Red Cross Fund	481,402.23	131,097.09
American Ambulance	386,127.89	
Committee of Mercy	146,502.48	
Polish Fund	45,627.28	12,904.66
Serbian Fund	39,452.11	11,756.25
Persian Fund	25,694.71	

BOSTON AND NEW ENGLAND.

SMALLPOX IN PROVIDENCE.—Report from Providence states that on April 18 two cases of smallpox were discovered aboard the Fabre steamship *Roma*, which arrived in port on that day from the Mediterranean. The first case had developed when the ship was nine days out from Marseilles. All the passengers were vaccinated and the patients were detained in quarantine.

MEETING OF CHARITABLE IRISH SOCIETY.—At a regular monthly meeting of the Charitable Irish Society on April 20, addresses were made by Dr. Allan J. McLaughlin, health commissioner of Massachusetts; by Dr. Timothy F. Murphy, who spoke particularly of tuberculosis; and by Dr. Thomas F. Harrington, director of hygiene in the Boston public schools, on preventive medicine in education.

HOSPITAL BEQUEST.—The will of the late James J. Myers of Cambridge, Mass., who died on April 13, was recently filed at the East Cambridge Probate Court. It contains a bequest of \$3000 to the Cambridge Hospital.

NEW HEALTH OFFICER.—Dr. Frank L. Morse, of Somerville, appointed to the position of district health officer, as noted in a recent issue of the JOURNAL, has resigned from that office because of other duties. Dr. McLaughlin has appointed Dr. Lewis Fish of Fitchburg to fill this position.

MASSACHUSETTS HOMEOPATHIC MEDICAL SOCIETY.—The annual meeting of the Massachusetts Homeopathic Medical Society was held in Boston on April 12, 13 and 14, in observance of the 75th anniversary of the foundation of the society. At the closing session Dr. G. Forrest Martin of Lowell, Mass., was elected president for the ensuing year. It was voted by the Society to send a contribution of \$500 to a medical field hospital which has been established by homeopathic physicians at Nenilly, France.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending April 20, 1915: Diphtheria, 34, of which 3 were non-resident; scarlatina, 84, of which 13 were non-resident; typhoid fever, 2; measles, 222, of which 3 were non-resident; tuberculosis, 44. The death-rate of the reported deaths for the week was 18.72.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.—A monthly meeting of the Boston Instructive District Nursing Association was held in this city on April 15. During the month of March 200 more new patients were treated than in February and 2000 more visits were made to patients in their homes. Four extra nurses have been needed to administer this increased amount of service. The twenty-ninth annual report of the Association, recently published, describes the work of the year and presents a study of 13,112 patients, showing the distribution of the fees, the details of the work, and the particular problems of different locality as regards tuberculosis, baby hygiene and unemployment.

MASSACHUSETTS HEALTH CONFERENCE.—Under the joint auspices of the Massachusetts Association of Boards of Health and the Massachusetts Health Commission there is to be held in Boston today an important public health conference under the chairmanship of Dr. Milton J. Rosenau, president of the Association. Invitations have been extended to health officials, publicists and charitable workers throughout the state, and there are to be addresses by President Eliot, Dr. W. T. Sedgwick, president of the American Public Health Association, Dr. Allan J. McLaughlin, Massachusetts Health Commissioner, and Professor Irving Fisher of Yale.

"The Massachusetts Association of Boards of Health is composed of health officials and persons interested in preventive medicine. It was organized in 1890 and meets four times a year. It was the regular meeting of this Association that was selected for the health conference. The objects of the Association meetings are the advancement of sanitary science in the Commonwealth of Massachusetts, the promotion of better organization of local boards of health, and the uniform enforcement of laws and regulations relating to the preservation and promotion of health. The meetings give an opportunity, also, for local health officials to explain to the state department of health problems and the solution of problems before the department, thus promoting a better coöperation not only between neighboring communities but between the state's department of health and the local boards of health."

MASSACHUSETTS CLEAN MILK BILL.—On April 22 the Massachusetts Senate passed to be engrossed the clean milk bill, whose passage has been editorially advocated by the JOURNAL and by various public health, charitable, and educa-

tional organizations in Boston. Mr. George R. Bedinger, director of the Boston Milk and Baby Hygiene Association, has recently sent to every senator a circular letter in behalf of this bill, reading in part as follows:—

"It needs no investigation to bring us to the conclusion that our State Department of Health ought to have the legal authority on its own initiative to stop the sale of milk from filthy places by means of such a law as Senate bill No. 482, making it illegal to sell milk handled under unsanitary conditions and providing that no person shall be prosecuted until after he has had a warning notice.

"Legislation has been postponed from year to year on every conceivable pretext and we think it is high time something was actually accomplished.

"It should be remembered that this campaign has been carried on during the last five years as a result of two official investigations made in 1910 and 1911. That the amendment to investigate the subject for still another year is made for the purpose of killing the bill, is shown conclusively by the fact that the men who are advocating it have already during this session voted twice against a similar investigation."

On April 26 an open meeting for milk consumers was held in the evening at Huntington Hall, Boston, under the auspices of the committee on agriculture of the Chamber of Commerce.

"For over a year the Committee on Agriculture of the Boston Chamber of Commerce, in co-operation with the federal and state agencies, has been making a very thorough investigation of the production, transportation, inspection, grading and distributing of milk and cream in New England. It has held meetings and conferences with the farmers, dealers, railroad representatives, milk inspectors and health officials. The conditions pertaining to each phase of the industry have greatly changed in the last ten years. The committee has endeavored to ascertain just what the present conditions are in each phase, *i.e.* how, and where, milk and cream are produced, transported, inspected, graded and distributed; what they cost and what becomes of the difference in price paid by the consumer and the price paid to the producer. The committee expects to issue a report about June 1, which will enable the public to have correct information as to the present conditions, with certain practical recommendations that can be carried out for the benefit of all. The committee has interviewed many large buyers of milk and cream but, before it makes up its final report and recommendations, it wishes to hear from the general consuming public."

EPIZOOTIC OF FOOT AND MOUTH DISEASE.—It is stated on apparently good authority that since March 18, no new cases of foot and mouth disease have occurred in Massachusetts and none is known to exist in the state. Dr. Lester H. Howard, commissioner of the Massachusetts Bureau of

Animal Industry, is reported to have said that the movement of cattle within quarantine towns is now allowed by special permit.

"Such permits will be issued in the future where the circumstances are favorable. In the western and northwestern parts of the State, where the foot-and-mouth disease never appeared, the cattle movements are unrestricted, but in the infected area of the State the quarantine may have to remain for ninety days after the last place in the country to report any infection has been fumigated. Under Dr. Howard's policy of issuing permits this does not mean the enforcement of the strict quarantine regulations that have tied the hands of Massachusetts farmers for the last six months, as the farmers will be allowed to move their cattle in vehicles if they apply to the Cattle Commissioner for permits, subjecting their activity to the State regulations; but it is the Government's intention to keep its reins on all cattle movements for the present in order that the check can be applied instantly if there is an outbreak anywhere. While Dr. Howard concedes that it may be perfectly safe to throw everything open now, he says it is better to be cautious a little longer, lest there be an animal somewhere carrying the disease on the skin, ready to yield to it if the skin is bruised or the general health is broken down. With such possibilities Dr. Howard wishes to take no chances, and the Federal Government will take no chances, if it can be avoided within reason. Cattle will not be allowed to walk or run in the public streets within the quarantined zones, but may be transported under proper conditions. Nor will the Department of Animal Industry in Massachusetts allow the full repopulation of disinfected barns at once. Despite the disinfection some germs may have escaped and may become active when cows are put back into the stables. Therefore the number to be put in at first will be regulated."

From the date of the first outbreak, last November, up to the present time, the foot-and-mouth disease has resulted in the slaughter in Massachusetts of 2104 head of cattle, 5703 swine, 77 sheep and 11 goats. These 7895 animals had an appraised value of \$230,000, of which the United States Government will pay \$115,000 and the State of Massachusetts \$115,000. To meet this charge the Massachusetts Legislature has appropriated \$150,000. There are heavy losses to the farmers, however, that are not covered by that appropriation, and never will be paid.

Obituary.

SIR THOMAS SMITH CLOUSTON, M.D.

DR. SIR THOMAS SMITH CLOUSTON, who died on April 19, at Edinburgh, Scotland, was born in

Orkney in 1840. He received his education at Aberdeen and Edinburgh Universities, and subsequently settled in Edinburgh as a practitioner in psychiatry. He had served as president of the Medico-Psychological Association, the Medico-Chirurgical Society and the Royal College of Physicians of Scotland. He had also been superintendent of the Royal Cumberland and Westmoreland Asylums and was for many years editor of the *Journal of Medical Sciences*. He was the author of several books, among them "Clinical Lectures on Mental Diseases," "The Neuroses of Development," "An Asylum or Hospital House," "The Hygiene of Mind," and "Unsoundness of Mind." He was distinguished throughout Great Britain as an authority on mental diseases and had received the honor of knighthood in 1895. He is survived by one daughter and one son.

JAMES BRAINERD FIELD, M.D.

DR. JAMES BRAINERD FIELD died at his home in Lowell, April 15, of pneumonia, after an illness of six days. He was born in Athol, Mass., Feb. 16, 1859, and was educated at the Boston Latin School and at Harvard College, from which he was graduated in 1880. After graduating from the Harvard Medical School in 1884 he began practice in Lowell. He was a member of the staffs of the Lowell General and Lowell Corporation Hospitals and had for twenty years been treasurer of the Association of the Massachusetts Boards of Health, and for nine years chairman of the Lowell Board of Health.

He was a counselor of the Massachusetts Medical Society from 1907 to 1908, and president of the Middlesex North District Medical Society in 1912-13.

He is survived by his widow, one daughter, and a son, who is a student at the Harvard Medical School.

Miscellany.

DEFENCE OF ANIMAL EXPERIMENTATION IN BOSTON

IN the issue of the JOURNAL for April 15, we noted the recommendation initiated by Mayor Curley for the establishment of a fund of \$20,000 in the pathological department of the Boston City Hospital for the experimental study of scarlet fever, measles and other infections. This proposition has been opposed by anti-vivisectionists who have protested to the mayor against the project. In his reply to one of these protestants

Mr. Curley wrote as follows in defence of animal experimentation.

"Unfortunately, perhaps, for myself, I have adopted the policy through life of speaking plainly my mind with reference to any question submitted, and like all humans, it is only natural that from time to time I err and not infrequently make mistakes. In this case however, I believe that I am not committing an error, neither am I making a mistake, despite the fact that the action taken by me will result in the estrangement of those whom I have regarded as friends.

"The same condition that obtains at Boston is found throughout the entire United States and the world generally. The financial loss to the city during the past six years resulting from epidemics of scarlet fever and measles is not less than \$600,000. There is no method of logic by which it is possible to determine the injury or the suffering caused to parents through illness and death of their children. It is perfectly proper for the individual to have a high regard for pet animals, and while the chimpanzee is not attractive as a pet, I find it has numerous admirers.

"I firmly believe that the life of one child is of more value to its parents than all the chimpanzees in existence, and if, through vivisection of chimpanzees, a serum can be produced that will result in the saving of the lives of children, I am prepared to attempt the experiment regardless of whose sensibilities may be offended."

In approbation of this attitude on the subject of animal experimentation the following letter was sent to the mayor by Dr. Withington as president of the Massachusetts Medical Society.

"Dear Mr. Mayor—I beg leave to express to you in behalf of some three thousand physicians of this State, our profound appreciation of the strong letter which has appeared in the public press from your honor to an objector against animal experimentation as an aid to the saving of human life.

"In the midst of ignorant statements regarding the status of epidemic disease, which might be easily corrected by a reference to health statistics, and of assertions of the infliction of torture upon animals, which have been mercifully made oblivious by anaesthesia, it is refreshing to have a sane statement from a man and an official interested in the saving of human life and the stopping of economic waste. The vivisection (for every prick with a hypodermic needle is technically that) practised for years in our municipal laboratory in the testing of the virulence of diphtheria and other organisms, has already borne abundant fruit in the saving of many children's lives.

"Chimpanzee or child? Which is the better worth saving? You have answered the question courageously and it is to be hoped, definitely, and in so doing you deserve the thanks not only

of scientific workers, but of the fathers and mothers in the city.

"Yours respectfully,

"CHARLES F. WITHINGTON, M.D.

"President of The Mass. Medical Society."

The attitude of the mayor and its prompt recognition by the representative of the Massachusetts medical profession is a matter of encouragement and congratulation for the cause of animal experimentation.

TUBERCULOSIS "REMEDIES" THAT ARE WORTHLESS.

THE United States Department of Agriculture has recently issued the following statement about so-called tuberculosis cures:—

"After investigating under the Food and Drugs Act, a large number of preparations advertised as consumption cures, the Department of Agriculture has not been able to discover any that can in any sense be regarded as 'cures' for tuberculosis. Some contain drugs that may at times afford some temporary relief from the distressing symptoms of the disease, but this is all. Since the passage of federal legislation prohibiting the shipment in interstate commerce of medicinal preparations for which false and fraudulent claims are made, there has been a marked tendency to label these preparations 'remedies' instead of 'cures' or 'infallible cures,' as they used to be called. In many cases, however, they cannot even be regarded as remedies.

"A 'cherry balsam,' for example, for the 'cure' of 'consumption' and 'hemorrhage of the lungs,' which it was represented would 'strike at the very root of the disease,' was found on analysis to be nothing but a solution in water and alcohol of opium, sugar, benzaldehyde, inorganic salts and coloring matter. It contained no cherry bark extract or balsam.

"A more elaborate 'cure' consisted of five different preparations which the credulous patient was to take separately. These were: first, the medicine proper, the essential ingredients of which were found to be morphine, cinnamic acid and arsenic—not a very safe mixture to take habitually; second, a tonic which was supposed to contain iron but did not; third, a 'cough mixture,' made up of alcohol, chloroform, and codeine; fourth, a mixture which contained some quinine, and a solution of water and alcohol; and fifth, codeine tablets. Even the strongest constitution could hardly stand a prolonged course of such a treatment.

"In the marketing of such preparations considerable ingenuity is frequently shown. One of the main objects is to persuade the patient that he is receiving, at a comparatively low price,

the individual attention of a trained specialist. For this purpose, symptom blanks are employed. These contain a number of questions about the patient's symptoms, the number varying from a dozen or so to as many as seventy or eighty. The patient is led to believe that the information which he furnishes in reply to these questions, will be carefully considered before any medicine is prescribed for him, though every physician knows that an accurate diagnosis cannot possibly be made in this way. As a matter of fact, none is attempted, and the degree of attention which these individual reports receive can be measured by the fact that cases have come under the observation of the department in which mail order concerns doing a business of this kind have received as many as 4000 letters a day.

"After the patient has submitted his 'diagnosis report,' he is urged to purchase a supply of the medicine. If he does so, he is then urged to purchase more. If he states that he has experienced no beneficial effects he is told that he has not taken enough, and this process is likely to continue until the limits of his credulity have been reached. If, on the other hand, he decides at the beginning not to purchase the medicine, it is likely to be offered to him at successively lower prices until he is at last induced to believe that he cannot afford to ignore such a bargain. This is carried to such an extent that a 'treatment,' the original price of which is \$25, may be offered at the end of six months for \$2.50.

"As a matter of fact, the successful treatment of tuberculosis requires much more than the mere giving of medicine and, moreover, what will help one case will not necessarily help another. Claims that are absolutely unwarranted are no longer permitted on the labels of medicines shipped in interstate commerce, but the wording may be such as to convey a misleading impression without the use of absolute statements. Thus these preparations continue to find a sale, despite the fact that a little trouble on the part of the prospective purchaser will reveal their worthlessness."

AMERICAN SOCIAL HYGIENE ASSOCIATION.

THE American Social Hygiene Association has recently announced the offer by one of the large insurance companies of a prize of \$1000, to be awarded to the author for the best original pamphlet on social hygiene for adolescents between the ages of twelve and sixteen. The competition for this prize is open to all, and typewritten manuscripts, not exceeding 3500 words in length and signed by a fictitious name, must be submitted, with the author's true name in a sealed envelope, to the American Social Hygiene Association, 105 West Fortieth Street, New York

City, not later than July 31, 1915. The following statement with reference to the competition was published in the bulletin of the Association for March, 1915:—

"In offering a prize of one thousand dollars for a social hygiene pamphlet for adolescents, suggested and generously provided by the Metropolitan Life Insurance Company, the American Social Hygiene Association is presenting a problem for solution by writers in the social hygiene field. The conditions under which this offer is made are printed elsewhere in this number of the Bulletin. No suggestions or restrictions as to methods of presentation or treatment of the subject-matter are made. It is, perhaps, unnecessary to say that accuracy of statement, such use of statistics and quotations as is warranted by the context from which they are taken, broad and practical grasp of the subject as presented, soundness of pedagogical method, and attractive and convincing form are among the important points to be considered in judging the merits of manuscripts submitted.

"The questions most frequently asked by those interested in the competition are: 'What kind of pamphlet is wanted? Is it to be written for boys, or for girls, or for both—or for parents? Must it cover the entire period of the four years specified? Must it take up the physiological changes of adolescence? What sort of instruction may the author assume that the child has had before reading the pamphlet?' To such inquiries the reply is that the prize has been offered for the best solution of the problem of approaching through the printed word the youth of America from twelve to sixteen years of age. If the author is convinced that the indirect approach through the parent is the proper method, he may prepare his manuscript for use by the parent. If he thinks that the most pressing need is for a pamphlet to be placed in the hands of boys, he may prepare his manuscript for that purpose. Similarly, he may prepare it for the use of girls, or, if he thinks it more desirable, he may combine his information into a single pamphlet for the use of both boys and girls. If he believes that adolescents from twelve to sixteen years of age do not form a practical group, he may direct his effort toward any portion of this age group (for example, those from twelve to fourteen years, or those from fourteen to sixteen years), and may so indicate. He may submit his manuscript as one of a series designed for special groups, but should present also the other numbers of the series, to show its character as a whole. Notes explaining the points of view from which it has been prepared may be submitted with the manuscript, bearing the same identifying mark or pen-name, but not the name of the author.

"It is generally recognized that the early adolescent period in the life of both boys and girls presents one of the most difficult problems in educational work. In the special fields of instruction or education with which the social

hygiene movement deals, this period is probably the most difficult. There is substantial agreement as to what information ought to be given the young child and as to the desirability of thorough, scientific instruction touching on the problems of sex and reproduction for persons of mature years. But the problem of the early adolescent period still awaits a satisfactory solution."

GERMAN MEDICAL EFFICIENCY.

A Swiss correspondent in a recent issue of the *Lancet* describes a recent visit made by a party of Italian and Swiss Red Cross physicians to German military hospitals along the western battle front, and at Berlin, Brussels, St. Quentin and Sedan. Professor Baldo Rossi speaks with enthusiasm of the efficiency of the German army medical service as witnessed on this occasion.

"The organization of the German medical service is simply wonderful. Nothing seems to have been left to chance, but, on the contrary, every detail seems to have been thought out carefully. At Berlin a large number of public and private buildings — theatres, cinematograph houses, police stations—have been handed over to the Army Medical Department, while various types of hospitals are situated at different points along the main roads which link up the capital to the fighting line. The wounded are not removed from the trenches until evening, as there is the danger of transports being attacked in the daytime by the enemy. Medical assistance is, of course, rendered immediately, and the German trenches, moreover, are not uncomfortable places. At dusk ambulances drawn by horses reach the trenches and the wounded are transferred into them. Horse ambulances are used because the roads are frequently too difficult for automobiles, and because, even were the latter used, the noise of the motors and the glare of the headlights would attract the enemy. The wounded are first taken to the medical stations situated about five miles in the rear of the trenches, each of which is under the supervision of nine doctors, of whom three are surgeons and one an oculist. These medical stations have been carefully selected and contain operating tables, instruments of the most expensive and intricate kinds, and all drugs that might be required. Many of the beds in use are curious, and offer testimony to the practical nature of the Germans. The number of wounded proved so much greater than had been anticipated that the ambulance men were compelled to make beds to the number of many thousands from the boxes and cases which had contained food for the troops."

Of the nature of the wounds and their treatment Dr. Rossi speaks as follows:—

"Most of them are caused by cannon projectiles, whereas in preceding wars injuries were

mainly due to rifle fire. Wounds in the head are numerous, owing to the trench fighting, which is the chief characteristic of the campaign. Instances of 'frozen feet' are not frequent, one reason being that the German soldiers wear very high boots. Amputation, practised so largely in previous wars, is now reserved by the Germans for desperate cases, so that at the end of the present war, vast and terrible though it is, mutilated men will not be very numerous."

At Brussels the visitors attended a conference of German medical officers for the discussion of the public health problems of Belgium and the efficient reorganization and administration of local public hygiene and sanitation.

SOME ANTI-VACCINATION ARGUMENTS.

At a recent meeting of the American Anti-vaccination League in favor of the bill (House No. 886) then pending before the Massachusetts General Court, but since fortunately defeated, the following statements were made by some of those present in opposition to vaccination. These statements seem of interest as examples of the type of argument against which the medical profession must contend in its effort to maintain the advancement of science for the benefit of the public.

"I object to the practice of vaccination because it does not, in my belief, act as an effective preventive. The insistence upon revaccination tends to corroborate this doubt. But waiving the question of degree of protection afforded by vaccination, and assuming it to be relatively innocuous, I protest vigorously against the invasion of individual rights caused by the official operation of a compulsory law.

"Some superstitions die hard, and I can only say to the compulsory vaccinators that I shall welcome the general injection of vaccine only when they succeed in procuring it from the cow that jumped over the moon."

"The meeting was called in the hope of strengthening our forces against our enemy. Our enemy in the present instance is medical tyranny, the tyranny of the political doctor, the members of the American Medical Association, which is the greatest menace this country has today. We are here to protest against the compulsory poisoning of the blood stream of our healthy children in the absurd hope of protecting them against some disease in the future to which there is every reason to believe they will never be exposed.

"If Massachusetts through an unjust law, passed many years ago in ignorance, or through undue influence of a privileged class, has caused the death or life-long injury of one single child, isn't that sufficient reason for the repeal of the compulsory vaccination law? After sixty years of compulsory vaccination, the number of chil-

dren killed or permanently injured is well up in the thousands.

"For years past over two-thirds of all those who have succumbed to smallpox had been vaccinated. Where there is most vaccination there also is most smallpox; where there is least vaccination and good sanitation, there is the least smallpox, and the lowest general death-rate."

MEMORIAL RESOLUTIONS.

HENRY WALTON WOOD, M.D.

At a meeting of the Boston Society of Psychiatry and Neurology held April 15, 1915, the following memorial was read:—

By the death of Dr. Henry Walton Wood the Boston Society of Psychiatry and Neurology loses one of its younger members. Through his personality and capacity he had already established an enviable position for himself in the general practice of medicine. His previous training and natural inclination, however, led him into the special study of psychiatry, a field in which his preliminary work gave promise of substantial accomplishment. His opinion on matters relating to the nervous system was increasingly sought by his colleagues and by the courts.

The Boston Society of Psychiatry and Neurology desires to express to his widow and family its sympathy at his untimely death and to cause this tribute to his memory to be spread upon its records and to be published in the BOSTON MEDICAL AND SURGICAL JOURNAL.

J. W. COURTNEY, M.D.

E. W. TAYLOR, M.D.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING APRIL 17, 1915.

CONTRIBUTIONS.

Fort Wayne Medical Soc., Fort Wayne, Ind.	\$ 25.00
Ramsey County Medical Soc., St. Paul, Minn.	25.00
The New Castle Physicians Club, New Castle, Pa.	10.00
The Harrison Co. Med. Soc., Gulfport, Miss.	25.00
The Cumberland Co. Med. Soc., Portland, Me.	25.00
The Waterbury Medical Association, Waterbury, Conn.	13.00
Dr. William T. Hamilton, Philadelphia, Pa.	5.00
Dr. Charles Alfred Dukes, Oakland, Cal.	5.00
Dr. P. St. L. Moncure, Norfolk, Va.	5.00
Dr. R. T. Stratton, Oakland, Cal.	5.00
Dr. R. J. E. Scott, New York, N. Y.	5.00
Dr. W. C. Cahall, Germantown, Pa.	2.75
Dr. Richard Dewey, Wauwatosa, Wis.	10.00
Dr. E. H. Ruediger, Manila, P. I.	10.00

Dr. Lucretius H. Ross, Bennington, Vt.	10.00
Mr. A. W. Burdham, Pittsburg, Pa.	5.00

Receipts for week ending April 17.	\$ 185.75
Previously reported receipts.	6138.75

Total receipts.....\$6324.50

Disbursements for week ending April 17:

80 standard boxes of food @ \$2.30..\$ 184.00

Previously reported disbursements:

1625 standard boxes of food @ \$2.20.. 3575.00

1114 standard boxes of food @ \$2.30.. 2562.20

Total disbursements.....\$6221.20

Balance \$3.30

F. P. SIMPSON, M.D., *Treasurer*,
7048 Jenkins Arcade Bldg.,
Pittsburg, Pa.

The following letter from the Pittsburg branch of Messrs. Marwick, Mitchell, Peat & Company has just reached the hands of the Treasurer.

PITTSBURG, PA., March 26, 1915.

DR. FRANKLIN H. MARTIN, *Chairman*,
Committee of American Physicians for
the Aid of the Belgian Profession,
Chicago, Ill.

Dear Sir:

We have audited the accounts of the "Committee of American Physicians for the Aid of the Belgian Profession" for the quarter ended March 20, 1915.

WE HEREBY CERTIFY that all donations received have been properly accounted for and applied to the purchase of provisions and that the following is a correct summary of the Receipts and Disbursements for the period:

Receipts \$5221.50

Disbursements:

1625 boxes of food 3575.00

Balance on deposit in Union

Trust Company, Pittsburg, Pa. \$1646.50

All but nine of the boxes of food had been delivered at the Bush Terminal, South Brooklyn, New York, to "The Commission for Relief in Belgium" as at the date of our audit, and in addition 715 boxes have been ordered, bringing the total of the boxes up to 2340. The foregoing bank balance will be used to pay for the 715 boxes on order.

Yours truly,

(Signed) MARWICK, MITCHELL, PEAT & CO.

AID FOR BELGIAN PHYSICIANS.

It has been difficult to get definite information regarding the exact destination of food and supply boxes sent into Belgium. A recent letter from Dr. S. Squire Spriggs, Hon. Sec'y of the Relief Fund for Belgian Doctors and Pharmacists, gives the following information:

"The boxes of drugs, instruments, and dressings duly reached Brussels and were there distributed to the place where they were most needed by the Aide et Protection aux Médecins et Pharmaciens."

The latter is a Committee of Belgians formed to consider the condition of the doctors and pharmacists. It is a representative body and has organized machinery for ascertaining where the need is greatest among those whom it would help and providing sys-

tematic relief. Forms have been issued to all the doctors and pharmacists in Belgium on which they are asked to state frankly their positions and that of their families, the loss they have sustained and the estimated amount of money to enable them to tide over their existing terrible circumstances. On these points the Committee has acted in consultation with the local medical societies throughout Belgium and with the Government Inspectors of Pharmacy. Small amounts of money have been distributed in this way and the better circumstanced doctors and pharmacists of the larger cities of Belgium have contributed to this fund. Originally this Committee had a subsidy from the National Relief Fund but this is now exhausted. The British Committee have investigated this work and are advising now that help in money should be sent.

DR. J. RIDDLE GOFFE,
New York.

RED CROSS RELIEF.

The American Red Cross shipped to England on the American liner *St. Paul* on April 24, a \$10,000 consignment of hospital and medical supplies to the British Red Cross. The consignment included 11,000 pounds of absorbent cotton, tetanus antitoxin, and thousands of hospital garments. On the Russian-American liner *Kursk*, which sailed on April 27, the Red Cross shipped a \$21,000 consignment to the Russian Red Cross at Petrograd. The consignment consisted of hospital garments, hospital supplies and miscellaneous clothing.

On the Italian liner *San Giovanni*, which sailed on April 24, the Red Cross made its first shipment to the Montenegrin Red Cross at Cetinje. The consignment included 1100 pounds of absorbent cotton, a large quantity of hospital supplies, and clothing for destitute women and children.

The first shipment of comfort kits for the convalescent soldiers of France was sent on April 24 on the French line steamship *Rochambeau*. There will be some 2000 of these kits forwarded by the Lafayette fund, which has been engaged during the past winter in sending kits to the French soldiers in the trenches.

APPOINTMENTS.

Dr. Charles P. Bancroft of Concord, N. H., was, on April 15, reappointed superintendent of the New Hampshire State Hospital.

Dr. Edmund Winfred Wilson was, on April 16, appointed assistant superintendent of the Boston City Hospital.

On April 19 the corporation of Yale University appointed *Dr. Charles Edward Amory Winslow* of Boston as professor of public health in the Yale Medical School on the Anna M. R. Lauder Foundation. Dr. Winslow has served as assistant health officer of Montclair, N. J., as member of the Massachusetts State Board of Health, as assistant professor of sanitary biology at the Massachusetts Institute of Technology, as associate professor of biology in the College of the City of New York and as head of the division of publicity and education of the New York State Department of Public Health.

Dr. Harold B. Myers of Portland, Me., has been appointed professor of materia medica and pharmacology and *Dr. Howard D. Haskins* of Cleveland, professor of physiologic chemistry at the University of Oregon.

Dr. H. Roy Dean, who since 1912 has been professor of pathology at the University of Sheffield, England, has been appointed professor of pathology and pathological anatomy at the University of Manchester.

CENSORS' EXAMINATION.

The Censors of the Suffolk District Medical Society will meet to examine candidates for admission to The Massachusetts Medical Society at 8 The Fenway, on Thursday, May 13, 1915, at 2 P.M.

Candidates, who must be residents of the Suffolk District, or non-residents of Massachusetts, should make personal application to the Secretary, and present their medical diplomas, at least three days before the examination.

For further particulars, apply between 2 and 3 P.M. to

WALTER C. HOWE, M.D., *Secretary*,
303 Beacon Street.

SOCIETY NOTICE.

NEW ENGLAND PEDIATRIC SOCIETY.—The thirty-eighth meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, April 30, 1915, at 8.15 P.M.

The following papers will be read:

1. "Can the Speech Present a Sign of Congenital Syphilis?" W. B. Swift, M.D., Boston.
2. "Acute Otitis Media in Childhood; Avoidable Mistakes in Diagnosis, Prevention, Treatment." W. R. P. Emerson, M.D., Boston.
3. "Studies in Bronchial Glands." W. W. Howell, M.D., Boston.
4. "Endocarditis in Children; Its Prophylaxis and Treatment in an Out-Patient Department." R. S. Eustis, M.D., Boston.

Light refreshments will be served after the meeting.

E. M. BUCKINGHAM, M.D., *President*.
RICHARD M. SMITH, M.D., *Secretary*.

RECENT DEATH.

DR. A. A. W. HUBRECHT, professor of embryology at the University of Utrecht, Netherlands, died on March 21 at the age of 63 years.

BOOKS AND PAMPHLETS RECEIVED.

General Index to the Annals of Surgery. Vols. 51 to 60, 1910-1914.

Psychology and Parenthood, by H. Addington Bruce. Dodd, Mead & Co., 1915.

A Case of Chronic Lymphoid Leukemia with Much Temporary Benefit from Benzol Treatment, by H. D. Rolleston, M.D., and J. D. Rolleston, M.D. Reprint.

A Practical Treatise on Diseases of the Skin, by Oliver S. Ormsby, M.D. Lea & Febiger, 1915.

The Practical Medicine Series. Vol. 1. General Medicine, by Frank Billings, M.D., and J. H. Salisbury, M.D. Series 1915. The Year Book Publishers.

Dementia Precox Studies. The Case for Dementia Precox as a Pluriglandular Disease, by Bayard Holmes, M.D. Chicago. Reprint.

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Address

THE TUBERCULOSIS WORK IN CONNECTICUT, ITS DEVELOPMENT IN THE LAST DECADE, AND ITS FUTURE NEEDS.*

BY DAVID RUSSELL LYMAN, M.D., WALLINGFORD, CONN.

TEN years ago a paper on the subject I have chosen would have had very little to say about past accomplishments and a great deal concerning the future. At that time the work was generally considered by most people to be in the experimental stage. We sent our dying patients far away from home in the hope that a change of climate would accomplish the impossible—and we carefully refrained from telling the early cases that they had tuberculosis for fear that the shock would destroy their chance of recovery. For those who had not as yet contracted the disease, but were in constant contact with it in its worst forms, we did nothing at all. In 1902, however, a small body of men, furthering a movement inaugurated by the New Haven County Medical Society, formed and incorporated the New Haven County Anti-Tuberculosis Association, and through their efforts the Gaylord Farm Sanatorium was opened in September, 1904, with a capacity of 22 beds.

Today Gaylord Farm has 110 beds: Wildwood, at Hartford, 50; the four state sanatoria at Hartford, Meriden, Norwich and Shelton a total of 600; and the New Haven Hospital is pre-

paring to build for 110 more. Stamford and Greenwich also maintain small wards with a total of 30 beds. These, with the available room in private institutions, give us about 950 beds. The great Commonwealth of Massachusetts has less than 2000; and, in fact, no state can, in proportion to population and resources, show so liberal a provision for the treatment of her tuberculous cases.

Ten years ago there was but one association devoted to this work—the New Haven County Anti-Tuberculosis Association. Now there are similar organizations in Waterbury, Meriden, Hartford, New Britain, Middletown, Norwich, Norwalk, South Manchester, and Stamford.

Then there was not a single tuberculosis nurse. Now New Haven, Waterbury, Meriden and New Britain have them, and the Visiting Nurses' Associations of other cities make special provision for tuberculosis work.

Then there were no tuberculosis dispensaries. Now these are found in New Haven, Hartford, Waterbury and Norwalk, and one is being organized in Meriden.

There were no associations for providing relief for the tuberculous workman or his family. The Employees Relief Association movement has been developed in Hartford, New Britain, South Manchester, New Haven and Bridgeport. This work comes closer to the solution of the problem of financing a long period of treatment for the workman than any other agency, and is probably Connecticut's greatest contribution to the general tuberculosis campaign.

More and more attention is being paid to the open air schools for tuberculous, backward or

* Read before The New Haven County Public Health Association.

defective children. We now have these in Hartford, New Haven, Waterbury and South Manchester, as well as in the children's pavilion in Gaylord Farm, and at the State Sanatorium at Hartford.

In addition to the above we have the State Tuberculosis Commission, established for the purpose of directing the work of the state sanatoria, and carrying on the general campaign throughout the state. Under the present interpretation of the statutes, the commission is without funds to do all the work of a central state agency, which it should do, and for which it is otherwise fairly well equipped. We hope the coming legislature will remedy this defect in the statutes, and permit the State Commission to take up that work which is so eminently its main task and the reason for its existence.

Looking back over the past decade we see a remarkable growth from the small beginning made by the New Haven County Association. We have a right to be pleased with our progress, but there is still much to be done. True, our death-rate is showing a most satisfactory drop; but the state statistics for 1913 still gave a total of 1659 deaths from all forms of tuberculosis. My experience of the past ten years would make me look askance at the 539 deaths reported from "bronchitis," "grippe" and "pleurisy." But leaving these out of consideration and accepting the customary average of ten cases for every death, we see that we have at present between 16,000 and 17,000 cases of tuberculosis in our state. With the vast amount of work yet to be done, the question of how to direct our energies in the next few years becomes a most pertinent one. How must our present works be modified or extended and what new lines of endeavor must be considered?

Our most efficient agencies so far have been the sanatoria for curable cases, the infirmaries for advanced ones, and the dispensaries, with their attendant tuberculosis nurses, to work among the people in their homes.

SANATORIA.

I am convinced that for the present there is no need for the state to erect more sanatoria for curable adult cases. There is practically never a time when we cannot find room for a good early case in one or the other of our sanatoria. Until there has been a further advance in the early diagnosis of the disease, our work so far as regards institutions for early cases, must be to increase their efficiency rather than their capacity.

To this end, the one crying need is for some provision for the care of the immoral, drunken, or unruly cases that are sent to these sanatoria by the departments of charity of our cities and towns.

The value of a sanatorium is twofold. It should restore the patient's health and at the same time teach him, not only how to retain his

working capacity, but after his return how to do his share in teaching the general public how the spread of tuberculosis can be prevented. To do these things, it is essential that the sanatoria, like any other school, should have a certain regimen and discipline, so that the patient and the public at large may get the most benefit from the large expenditures the state is making on this work. There are, unfortunately, quite a large number of cases that, whether through an adverse environment, lack of moral courage, or other causes, have degenerated to where they have lost sight of their obligations to their fellow men. Their one consideration is to do as they please. They are not only willing, but anxious, to stay in the sanatoria, where the accommodations, food, etc., are the most comfortable they have known. They are not, however, willing in order to enjoy these advantages to conduct themselves with any consideration of the sanatorium, their fellow patients, or their own physical needs. They wish to be allowed to get drunk as often as they can, to leave the place when they please, and return at any and all hours; and when they express displeasure or dissatisfaction, expect the nurses and other patients to make no objection to whatever vile and filthy epithets they may prefer to apply to them. The presence of these cases made it impossible to get the decent, self-respecting people, however great their need of treatment, to go to the sanatoria. Realizing that the sanatoria could never be more than mere lodging houses under these conditions, the State Commission began over a year ago to discharge all such cases that, after full trial and repeated warning, failed to comply with the most important of the rules. The statutes are specific in their mandate that we shall not receive or retain such cases unless separate provision is made for them, and we have no such separate accommodations, no funds to provide them, and no police authority to control them.

The statutes, however, also provide that such cases must not be kept in the almshouses, but must be sent to special tuberculosis hospitals. The situation today is, therefore, as follows: There are a large number of ignorant, immoral, and often vicious consumptives, whom the sanatoria are forbidden to take, and who cannot be put in the almshouse. Their presence in the poorer tenements of our cities is a great menace. The coming legislature must provide for their care, and it seems that this must be done in one of two ways. Their treatment in the sanatoria is impossible. Either a separate institution must be created by the state and maintained for these cases, or the cities and towns must be permitted to care for them in separate accommodations in connection with the almshouses.

The chief objections to the state furnishing the institution, are the expense, the difficulty of securing a site for an institution of this character, and the impossibility of maintaining it on the large scale that would be necessary unless it

were put on the grounds of some other institution already under police control, or unless the commission were given police authority over it. There would also be this great objection to a single institution: It must of necessity be distant from most of our cities, and although derelicts of humanity, its inmates would at one time of the year have an equal value with any of us, for we are all allowed but one vote. There would, therefore, be all sorts of pressure brought to bear to keep these votes where they would be readily available. It seems to be the consensus of opinion of the town authorities that a state institution would be best; but these opinions are based chiefly on the consideration of the expense to the small towns of maintaining their own institutions. We can, however, see no reason why the counties could not maintain such a place for the small towns and the large cities maintain their own. These buildings should be subject to the approval of the state commission, but not under its control. These town or county pavilions should be permitted to take only those cases that have proven unsuitable for treatment at the sanatorium. Instead of, as at present, the towns paying \$4.00 a week and the state \$7.00 to provide for these cases, the state should pay a weekly per capita to the towns for all cases in their pavilions. This plan could, I am sure, be worked out so as to care for these unfortunates in an adequate manner and at a financial saving both to the towns and to the state. The general public would be free from the menace of their unrestrained presence and the sanatoria would be developed to their greatest usefulness.

ADVANCED CASES.

The state accommodations for advanced cases are as yet inadequate. There is never a time when there are not many cases requiring infirm care waiting for admission; and now that the opening of our new infirmary at Shelton has made accommodations there what they should be, the number of applications is constantly increasing. The present building is but the central portion of the one we hope in the next year to be permitted to complete, and which, when finished, will give us sixty more beds for these cases. The 110 beds in the projected plant of the New Haven Hospital at Allingtown will also be devoted to advanced cases; and when both the above are in operation our accommodations will be fairly adequate.

CHILDREN.

Up to the present time the work among the children has been almost neglected. Gaylord Farm and the State Sanatorium at Hartford have separate quarters for them, where they can be segregated from the grown patients, and in both places a school is maintained. The number of beds available is, however, woefully inadequate. The State Commission recently sent an

inquiry to every teacher in the state in order to find out how many children there were in our schools, public and private, who had probable tuberculosis of the bones, glands or joints. From the answers received it would appear that there are at present in our schools about 4000 such cases. The value of seaside sanatoria for these cases has been proven beyond question. We hope that it will not be long before somewhere on our long expanse of beach we will see provision made for at least some of these little patients. These are the ones who if neglected now will fill our sanatoria with active cases in later life, and we can surely never control tuberculosis until we care for them.

The open air school movement should also be extended in all our cities. Many of the weakly anemic, backward children, many in the pre-tubercular stage, as it is often called, will not only acquire a sound basis of health under the influence of these schools, but will at the same time keep up in their studies—a feat that is utterly beyond their strength in the general classroom.

DISPENSARIES AND VISITING NURSES.

We cannot hope to cope with the 17,000 existing cases in our state if we depend solely or even chiefly upon institutions for their treatment. All important as is the treatment of the early cases, our hope of some day controlling tuberculosis is based on our knowledge that it is a preventable disease. To prevent it, however, it is essential that the people be taught. The press, the public lectures, and the warning and instructive placards in public buildings and factories all have a great value in this work; but to teach effectively you must teach the individual and must do it personally. It is for this reason that I rate the special dispensary, with its visiting tuberculosis nurse as the most valuable of all our forces in the campaign. The early diagnosis of tuberculosis is most difficult, but it is not nearly so difficult as it often is to make the patient accept the diagnosis and institute proper treatment. The chances are that he will be utterly unable to believe that the slight symptoms he has mean "consumption"; that he will go around to several other physicians; and if only one of the number expresses doubt of his being so afflicted the patient will decide that he is well, and postpone going away or taking any precautions until it is too late. The visiting nurse, however, follows up the patient, visits him at his home; spends hours if need be explaining, arguing, persuading; convinces other members of the household and secures their aid, brings up acquaintances to testify of their own experiences, and usually prevails upon the patient to take the treatment. But this is only a small part of the nurse's work. She goes to the home, where the danger of infection exists. She shows the people right on the premises how to carry out the necessary precautions, how to

clean up the room and let in light and air, what to do with dishes, sputum, etc., and she goes back again and again to see that these things are done and done correctly. Often it is impossible for the patient to go away for treatment, and then the nurse must arrange the patient's daily life, supply food and clothing, and day after day, and week after week, go back to encourage, advise and direct, not only the patient, but the whole household. In houses where there has been exposure from a chronic case, she can often detect suspicious symptoms in other members, and by getting them to a doctor for examination can get the diagnosis before the disease has begun to make headway.

The visiting nurse has another and a very important duty. We are recognizing more and more the value of proper after-care of our discharged patients, and are slowly realizing how much can be done by follow-up work toward making our so-called cures permanent. It is human nature to be on one's best behaviour when we know someone is watching. When the visiting nurse has a record of the discharged cases returning to town, and these patients know that she will visit them and inquire as to their daily routine, they are going to be more careful as to what they have to report. More than this, the nurse can discover, and often do away with, adverse conditions either in the home or in the place of employment, and can see that the patient goes to his physician at frequent intervals for examination and advice. Her coöperation after the patient goes back home and to work is not the least valuable of her many good works.

Given a dispensary where physicians trained in the diagnosis and treatment of tuberculosis can see the patient at intervals and direct the course to be followed; a visiting nurse to go to the home, instruct the family there, see that the patient follows orders, and bring any suspects to the dispensary for diagnosis; and behind these two a local association to furnish funds for treatment at home or in an institution, and we have the most valuable development of all our tuberculosis work.

The State Board of Health report for 1913 furnishes statistical evidence of the truth of this. The four largest counties in the state are New Haven, Hartford, Fairfield and New London. Almost all of the visiting nurses, dispensaries, and local associations are in New Haven and Hartford counties. Fairfield has none outside of Stamford, and New London none at all. Since 1907, the time when the work was begun, the records for these counties is as follows:—

New Haven, pop. incr. 311—357,000; death decr. 488 to 441 rate decr.
Hartford, pop. incr. 229—266,000; death decr. 324 to 309 rate decr.
Fairfield, pop. incr. 208—263,000; death incr. 358 to 369 rate decr.
New London, pop. incr. 87—93,000; death incr. 123 to 126 rate incr.

These figures would indicate that there was some agency at work in New Haven and Hartford counties that was not present in the other two, and the agency is to my mind the work of the local associations and their visiting nurse.

I feel very strongly that this is the work which we must strive to extend throughout the state if we would ever hope to control tuberculosis; and I feel that the future efforts of the state itself must be directed along this line, rather than toward the erection of more sanatoria, once the children have been cared for.

In taking over the state agency for the Christmas seals this year, the State Tuberculosis Commission had chiefly in mind the opportunity it afforded for getting in touch with the people throughout the state and aiding in the establishment of local tuberculosis associations wherever possible. We hope in time to see it develop to where the local associations will be able to devote all their funds to local relief work, and will be supplied by the state with visiting nurses to look after their tuberculosis cases, and to teach the prevention of tuberculosis where it should be taught—in the homes of the people. This plan would not entail a great expense upon the state and it would increase enormously the funds available for local relief work in the cities and towns. Suppose, for instance, the salaries of the three tuberculosis nurses of New Haven were paid by the state and the amount this requires released for relief work, can you not see how the latter could be extended? It would be a long step toward the solution of the problem of providing funds to keep tuberculous patients under treatment long enough to secure lasting results. We also hope in coöperation with the physicians of the state, to have the nurses' work supplemented by the establishment of dispensaries for the tuberculous poor, where the nurses and their patients can have the advantage of the advice of both the physicians of their towns and of men with special tuberculosis training, supplied from the medical staffs of the state sanatoria. When we have this local work established and supplemented by the generous provision the state is making in our sanatoria, we feel that we will be combating tuberculosis in the right place, at the right time, and in the right way.

Original Articles.

A RARE TYPE OF BLADDER ULCER IN WOMEN; REPORT OF CASES.*

By GUY L. HUNNER, M.D., BALTIMORE, MD.

AFTER a review of the literature on simple ulcer of the bladder I wish to present for your consideration this evening a group of cases in

* Read at a meeting of the New England Branch of the American Urological Association held in Boston on November 30, 1914.

which the lesion differs in many respects from the so-called Fenwick ulcer which has been the type heretofore designated as simple ulcer.

This group presents a strikingly uniform picture, an appreciation of the features of which by our branch of the profession will save the patient from much suffering, both from errors in diagnosis and consequent futile operations on other organs, and from the unnecessary prolongation of ordinary cystitis treatment when more radical measures are demanded.

These ulcers have been found in women, my work being confined to that sex. They probably occur in men. The average age of the eight women on first consultation was thirty-seven years, but the average duration of the bladder symptoms was seventeen years, making twenty years the average age at onset. Two cases stated that they had had bladder trouble as long as they could remember. In striking the average for the group I arbitrarily placed their onset age at fifteen years or about the menarche.

In none of the histories could I determine cause for the bladder lesion.

Three of the patients were unmarried, and there was no reason from the history or examination to suspect a former gonorrheal cystitis. Of the five married women, all had borne children, but in three of them the bladder trouble antedated childbearing and in the other two the bladder symptoms came on, in one, eleven years, and in the other one year after the last childbirth; so we cannot ascribe their trouble to puerperal infection. In no case was there a history of operation or catheterization to give an opportunity for possible traumatic or infectious origin from such sources.

If we accept the usual view that either an embolus or a thrombosis of a blood vessel is immediately responsible for simple ulcer of the bladder and cast about for the distant focus of infection in these cases, we find very little of even suggestive importance.

With the possible exception of Case IV, who gave a history of indefinite bladder symptoms since scarlet fever at six years of age, and who later recalled that for weeks after peritonitis (appendicitis) at twelve years of age, she suffered intensely on voiding, none of the cases gave a history of acute infectious fever immediately preceding their bladder symptoms.

CASE 1 had her bladder symptoms exaggerated when she caught cold, but there is nothing said in her history about tonsil or sinus infection.

CASE 2 had complained of rheumatism for several years and has had occasional attacks of rheumatism while under my care for the past six years, but I have been unable to find a source of origin.

CASE 3 had an attack of tonsillitis twenty years ago, but has had no throat trouble since, and she had been treated for bladder trouble before the tonsillitis attack.

CASE 4, as noted, may possibly have followed scarlet fever or an acute appendicitis attack.

CASE 5 never had evidence of tonsil or sinus

trouble, but had had rheumatism of the left knee intermittently for three years. Her bladder symptoms antedated this by three years.

CASE 6 had scarlet fever as a child and had nocturnal enuresis up to the menarche at fourteen years of age. Her severe bladder spasms began six months after the first menstruation.

CASE 7 had never had tonsillitis. As a child she had measles, mumps, and whooping-cough. Her bladder symptoms had been present as long as she could remember.

CASE 8 had had severe temporal headaches since childhood, more likely to occur around the menstrual period, and for two years she had noticed stoppage of the right nostril. Nasal and x-ray examination revealed marked disease of the right frontal sinus.

CASE 2 gave a history of the passage of a ureter stone five years before her bladder trouble began; and CASE 7, who had bladder symptoms all her life, had passed a pea-sized stone from the bladder ten years before consultation.

In view of the causal relationship which I have previously pointed out (*J. A. M. A.*—Vol. lvi, pp. 937, also *International Clinics*, Vol. iv—Twenty-second series) between chronic urethritis and infections of the tonsils, adenoids, sinuses, and teeth, there may be some significance in the fact that every one of these cases had a granular urethritis. The tenderness and scar tissue contraction was so marked in most of the cases as to require thorough cocaineizing and careful manipulation in order to do satisfactory cystoscopy. Fenwick emphasizes this urethral hyperesthesia in most cases of non-malignant ulceration of the bladder and advises chloroform anesthesia for the cystoscopic examination. It is possible that the bladder ulceration and the inflammatory condition of the urethra may have a common cause, or it may be that the frequency of voiding and straining bring about an hypertrophy and hypersensitiveness of the sphincter region.

After these remarks bearing on the etiology, let us now return to a consideration of some of the clinical features associated with the ulcer itself. These ulcers have all been found in the vertex or summit or free portion of the bladder; this being one important distinction in comparing the simple solitary ulcer of Fenwick which is found on the base or fixed portion of the bladder.

In three of the cases the ulcer was well forward—just back of the symphysis; in four, it was in the summit, with a tendency in three of them to occupy the posterior pole region, while in one case there was an ulcer area near the posterior pole, and another on the left anterior wall immediately back of the symphysis.

With the knee-breast posture and the Kelly cystoscope we are at some disadvantage in locating ulcers on the anterior or pubic wall. On the other hand, a chief characteristic of these ulcers is the extremely slight mucous membrane change found in certain periods of the ulcer, and I am confident that we have an advantage

over the Nitze method in our clearer definition obtained by direct vision through an air medium. We have another great advantage in using the knee-breast posture and air distention in being able to study the ulcer under similar conditions at all times. Fenwick warns against positive conclusions from one study of an ulcer through the magnifying cystoscope, which gives such different pictures at varying distances, and the ulcer itself varying in size and appearance with different amounts of the distending fluid.

While cystoscopy usually reveals only one inflammatory spot, there may be two or three granulation areas near together or somewhat separated, and operation usually reveals a more extensive area of inflammation than was appreciated by cystoscopy.

The ulcer area may be easily overlooked and the attention may first be arrested by an area of dead white scar tissue. In the neighborhood of this scar-looking area, one sees one or more areas of hyperemia which, on being touched with a dry cotton pledget, or with the end of the speculum, bleed and first show their character as ulcers.

In other cases, or perhaps at subsequent examination on the same case, the ulcer may be well defined as a deeply red area with granulating base and with congested vessels surrounding the area. In none of these cases has an individual ulcer area been more than a half centimeter in diameter, although two or three such ulcers have at times been grouped in a larger inflammatory area.

At certain examinations the central inflammatory area is found surrounded with a fairly wide area of edema. This was seen on one examination in Case 5, and it was much more marked at operation. In Case 3, whom I had examined many times, edema was never seen at cystoscopy, but at operation an edematous oval area of about 5 x 3 centimeters surrounded the central ulcers, and this was removed with a margin of one centimeter of normal mucosa.

In Case 2, in addition to the small ulcer area in the left vertex, which has been studied for the past six years, there has occasionally been a slightly congested area near the posterior pole, perhaps four centimeters distant from the ulcer, and on one occasion there was edema about this posterior pole congestion.

I am not prepared to estimate the significance of this edema area, but until we know more about it, I shall try to excise it entirely at operation. I have never noticed it in any other class of bladder operations. I think some of the edema area was left in Case 5, and she is the only one of our five operated cases who is not well.

The cystoscopic picture reveals the granulation surface as on the same general level as the surrounding mucosa, in other words one would describe these ulcers at cystoscopy as being superficial. I have never seen a deposit of urinary

salts on one of this variety and the surface has never shown the ragged, irregular character suggesting a possible malignancy.

At operation, after opening the bladder, the slight granulation surface can be easily detected with the bared palpating finger, and one is surprised after the cystoscopic picture, suggesting a simple superficial process, to find at operation that some of these inflammatory processes extend through the bladder wall and involve the peritoneum.

The urine presents a macroscopically normal appearance and the few leucocytes and red blood corpuscles present may be entirely overlooked with the microscope, unless care is used to settle or centrifugalize the specimen. Indeed the patient may come complaining of about her usual symptoms, at a time when the urine is temporarily closed and the urine is absolutely negative on microscopic examination. At her next visit there may be the usual urine picture of a few leucocytes and a few red blood corpuscles, found only on careful examination, and cystoscopy reveals a granulating area, or a slightly hyperemic area which oozes blood on being touched.

The most characteristic sign or symptom of simple ulcer as described by Fenwick and others, is hemorrhage. Only one of my eight patients ever noticed anything abnormal in the urine. Case 7 had seen blood at times, but when she came for treatment, the urine as in all the other cases, looked macroscopically clear and contained only a few red cells and a few leucocytes.

Diagnosis. So far as I know there is no form of bladder inflammation or ulceration that has an absolutely characteristic clinical history or cystoscopic picture. The ulcer under discussion is no exception to the rule.

The patient's recital of the insidious onset without apparent antecedent cause, and the long duration in spite of various forms of treatment, make one think at once of tuberculous disease. This is excluded as soon as one finds macroscopically clear urine associated with such a long history and absence of any sign of disease of the kidney or ureter.

One sometimes gets a history of serious symptoms simulating cystitis from patients suffering with chronic urethritis. As stated above, these cases under discussion have all had signs of chronic urethritis, but the presence of microscopic pus or blood, or of both, in urine catheterized from women makes one certain that he is dealing with something more than a urethritis.

There is nothing absolutely characteristic in the cystoscopic picture. Perhaps the most characteristic thing is the insignificance of the lesion as compared with the long duration and intensity of the patient's suffering. As stated above, one's attention may first be arrested by the slight smooth white scars of former ulceration rather than by the slight hyperemia or inflammatory spots near these scars. In other cases

there is a small granulation area which is bleeding from the distention of the bladder, or bleeds easily on being touched. In other cases or at other examinations of the same case the inflammatory spot is occupied and surrounded by an area of edema. Anyone familiar with bladder work has seen slight lesions, similar in appearance to these under discussion, and has seen them clear up spontaneously or after a few instillations of some antiseptic drug. Such slight lesions are generally accompanied by infection and the healing depends upon ridding the bladder of infection. In gonorrheal infections this takes place spontaneously in a few weeks, or much sooner if the bladder is treated.

Our conclusion therefore is that a diagnosis of this peculiar form of bladder ulceration depends ultimately on its resistance to all ordinary forms of treatment.

The difficulty of diagnosis in this class of cases unless we are awake to their unusual features, is best illustrated by the fact that four of the eight cases had operations on other organs in the effort to relieve symptoms caused by the bladder ulcer.

Microscopically one finds in the resected portion of the bladder wall a typical picture of chronic, simple ulcer. The epithelial layer is absent at the site of the ulcer and the mucosa layer is occupied by typical, chronic granulation tissue. In some of the specimens this granulation tissue is fairly richly supplied with capillaries, but in most of them there is a preponderance of connective tissue and infiltration of small round cells and leucocytes.

The epithelium surface in the neighborhood of the ulcer shows multiple layers of the transitional type of cells, the external layers being of the squamous stratified type and in places appearing hornified. Next to the ulcer the epithelial layer may end abruptly with a precipitous edge or there may be seen extending beyond this abrupt edge an attempt at repair in the nature of a single layer of cuboidal cells growing toward the bare surface of the ulcer.

The mucosa layer in the neighborhood of the ulcer shows an increase in the number and size of the capillaries, varying in the different specimens. The capillaries are often stuffed with leucocytes, as are many of the lymph spaces. There are some enlarged lymph spaces crowded with lymphoid cells and leucocytes, and where these are seen lying beneath the normal epithelium near the ulcer, they at first suggest the picture of tubercle.

There is hyalin degeneration in some areas and in some of the sections the edema causes rarification.

Some of the specimens show considerable non-striated muscle in the mucosa coat in the neighborhood of the ulcers.

The muscle coat shows enlarged lymph spaces, and these as well as some of the blood vessels of the muscle coat, contain many leu-

cocytes. Immediately beneath the ulcer, the muscle in places shows invasion and breaking up by the inflammatory process. The peritoneum, which in Case 3 was thickened and torn at the time of operation, shows microscopically a fibrous thickening and in the tissues a few wandering leucocytes.

Treatment and Results. Of these eight cases, five have had excision of the diseased area, with probable perfect result in all but one, Case 5. Of the three unoperated cases, I have treated Case 2 six years, with apparent healing on two or three occasions. Case 8 has been treated about eight months with improvement in the symptoms, but with little change in the appearance of the bladder lesion. Case 4 is now being treated by Dr. John Caulk of St. Louis, her symptoms having improved, but the lesion persisting after four months of rather desultory treatment under my directions during the past summer.

My experience with this relatively small number of cases convinces me that excision is the treatment after one arrives at a diagnosis of this particular form of ulcer.

As stated under the discussion on diagnosis, I would not arrive at a final diagnosis calling for operation unless the patient has had systematic local treatment for the bladder symptoms and presents in addition the signs and symptoms above enumerated as more or less characteristic.

The excision is done through a suprapubic extraperitoneal incision. To facilitate the finding and handling of the bladder, it is left full of air if cystoscopy has just been done in the knee-breast posture, or it is distended with sterile fluid just before operation.

If the peritoneum is involved in the inflammatory process and is accidentally torn in peeling it from the muscle wall, it is sutured at once before opening the bladder.

The incision in the bladder wall is made with a view to open near but not into the inflammatory area.

In my first cases I was interested in palpating the ulcers with bare fingers, but this is not necessary and tends to change the microscopic picture. The inflammatory area is easily found by vision, and by doubling it back over the fingers on the outside or muscle wall, it can be excised with all layers of the bladder wall without touching the mucosa layer of the inflammatory area. As soon as removed, the specimen should be pinned to a stiff cardboard before passing it to the preservative fluid. Otherwise it quickly shrinks and mars the microscopic study.

The few blood vessels of consequence should be grasped with forceps, and after the excision they should be tied with fine (No. 1) twenty-day catgut. Otherwise they may retract into the muscle wall and temporarily cease to bleed, only to give trouble during the first few days of convalescence, as happened in Case 3.

The bladder edges are quickly brought together by a running, lock stitch suture of either ten- or twenty-day, No. 2 catgut, leaving a slight opening in the vertex through which the mushroom retention catheter is carried and sutured to the bladder wall with a No. 2, ten-day catgut. The abdominal wall is closed, except for a small opening to carry the rubber catheter and a cigarette drain, which is introduced down to the bladder wall.

The cigarette drain is removed at the end of forty-eight hours, and daily irrigations of the bladder with 1:10,000 solution of silver nitrate are carried on through the retention catheter, increasing the strength of the solution as the patient recovers. An ounce or two of the solution is introduced and immediately withdrawn through the catheter until several washings are made. This is best accomplished with the patient on her side.

The retention catheter is withdrawn on the tenth to the fourteenth day, after which the daily irrigations are given through the urethra until the bladder is free from infection.

EPIDIDYMYOTOMY FOR ACUTE EPIDIDYMITIS, AS AN OUT-PATIENT PROCEDURE.*

BY A. H. CROSBIE, M.D., BOSTON.

AND

A. RILEY, M.D., BOSTON.

INFLAMMATION of the epididymis occurs practically always secondary to inflammation of the deep urethra in the region of the ejaculatory ducts. This inflammation of the deep urethra is usually associated with involvement of the vesicles and prostate. The severity of the inflammation in the epididymis bears no relation to the severity of the inflammation in the deep urethra. In some of the most acute cases of epididymitis the posterior involvement seems to be almost nil.

The causative factors may be most any of the pus-producing bacteria or the tubercle bacillus. It very frequently happens that a patient who is on constant catheter drainage or who is catheterized frequently or has instrumentation, develops an acute epididymitis. These cases usually develop very rapidly and are accompanied by a considerable rise in temperature, pain, rapid pulse and malaise. The course of such an epididymitis is usually short, subsiding almost as rapidly as it appeared. In some of these, however, an abscess develops which may point outwardly and has to be opened or breaks spontaneously. This almost never occurs in those cases of gonorrheal origin. We have never known of anyone doing epididymotomy for

these non-gonorrheal cases, but we should think it would be advisable, provided the inflammation does not clear up quickly.

What we are dealing with in this paper is epididymitis caused by the gonococcus. Up to about a year ago at the Boston Dispensary we had been treating these cases conservatively by local applications, strapping, rest in bed with ice bags, etc. We found that such treatment had many drawbacks. In the very acute cases the pain was very severe for a week or more, the patients frequently looked septic and had malaise, even after a subsidence of the acute pain. Many of these patients continue to have dull pain and uneasiness at times for many months after. Then, too, after the acute symptoms have subsided and treatment of the urethritis, which had been suspended, is begun again, these cases which have been treated palliatively are very apt to recur.

Finding this palliative treatment far from satisfactory, a little over a year ago Dr. Augustus Riley and I began to perform epididymotomy on the very acute ones. The results have been so gratifying that now we advise operation, even in the milder ones. During the past year we have operated upon twenty-eight cases, two of which were double. In one the double infection came simultaneously and in the other first the left was involved, and in about ten days the other became infected. In this case when the second epididymis became infected the patient returned at once and asked to have the operation done.

Apparently the first man to do epididymotomy for gonorrheal epididymitis was a Frenchman named Pirogoff in 1852; later it was done by H. Smith in 1864. These men apparently only punctured the epididymis from the outside. The operation then was neglected until Francis P. Hagner revived it in 1906. Following his original report of six cases operated upon, a great many men have reported series of cases, and all who have done it are enthusiastic about the results.

The operative procedure that we use differs from that used by Dr. Hagner only in some small details. We suture the wound differently and we operate a great deal under local anesthesia. Dr. Hagner advised against local anesthesia.

At first we operated only under ether. This meant that the patient must either go to a hospital or have it done at home. We found that many cases were unable to enter a hospital and consequently had to get along without an operation. Finally we decided to operate under local anesthesia and let the patient go home after the operation. The results were so good that now we do even the most acute cases in this way.

We use from 20 to 30 c.c. of 1% novocaine, to which has been added from three to six drops of adrenal solution 1-1000. The method is much

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the same as Braun, in his recent book on local anesthesia, advocates for any operation on the testes. The best syringe is a 10 c.c. glass syringe with a two-inch needle. The first step is to infiltrate the cord. This is done by grasping the cord, at the point where it emerges from the external ring, between the thumb and forefinger of the left hand. The needle is inserted into the cord and from five to ten c.c. of solution is



FIG. 1.
Infiltrating the cord.



FIG. 2.
The needle inserted into the inguinal canal.



FIG. 3.
Injecting the region of the globus major.



FIG. 4.
The line for circuminjecting the scrotum and the line of incision.



FIG. 5.
Incision down to tunica vaginalis.



FIG. 6.
Puncturing the globus minor.



FIG. 7.
At the point of the tenotome is a large drop of pus from an abscess in the globus minor.

injected in all directions. It is well, also, before removing the needle, to point upward and inject a little solution into the inguinal canal, to be sure to get complete blocking of all the nerves in the cord. The needle is then pushed downward, through the same point of entry, along the cord, to the region of the globus major, and

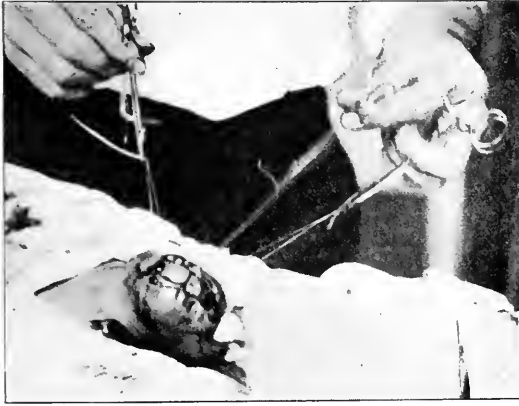


FIG. 8.

Testicle dropped back and sutures in place ready to tie. The wick at the lower end of the incision.

a little more solution injected. The scrotum is then circuminjected on the side to be operated on, all the way to the perineum. This injection is made where the scrotal skin merges with the skin of the thigh. Even though the operation be unilateral Braun recommends anesthetizing the scrotal skin all the way around, the same as one would for a double operation. We have not found this necessary, as we get complete anesthesia by injecting the one side. Finally, a little novocain is injected along the line of incision. In order to get perfect anesthesia, it is well to wait ten or fifteen minutes. With the anesthesia thus obtained it is possible to handle the testicle and epididymis without the slightest discomfort. There is no sensation for two or three hours after, so that after operation a patient walks out really much more comfortably than he came in. Even after the anesthesia works off there is very little pain.

The incision is made laterally so that the tunica vaginalis is opened near the epididymis. A lateral incision of this sort is hardly visible after a few weeks. In the very acute cases there is always considerable hydrocele fluid, so that it is easy to cut through the tunica vaginalis, but in one of many days' duration it frequently happens that the hydrocele fluid has disappeared and the tunica vaginalis has become adherent to the tunica albuginea and one has to use care not to cut into the testicle. Twice we have nicked the testicle without apparent ill effect, but we prefer not to do it. On opening the hydrocele sac conditions vary. In some there is merely clear straw-colored fluid and no adhesions; in others the fluid is turbid, containing fibrin, as in a gonorrheal joint, and in some, particularly the long-standing ones, there are many adhesions, especially of the tunica vaginalis to the epididymis. With the blunt end of a knife or with a pair of scissors the adhesions are freed and the testicle and epididymis are delivered through the incision. The inflammation is usually most severe at the lower pole, the globus minor. This undoubtedly is due to the fact that

as the inflammation travels along the vas it hits this part first and lodges in the fine convoluted tubules. These undoubtedly become occluded and check the inflammation from proceeding. Occasionally the major is also involved and rarely the inflammation is worse in the major. Apparently it never reaches the testicle itself.

After delivering the testicle the epididymis is carefully examined. Where the inflammation is worst the epididymis is hard and indurated. Occasionally minute abscesses can be seen as yellowish white dots. It is very rare that there is a single abscess large enough to give definite fluctuation. Multiple punctures are made in the indurated area, whether or not there is visible pus, with a tenotome. The tenotome is plunged through the fibrous covering deep into the epididymis. It frequently happens that a drop of thick yellow pus wells up in the puncture. Smears from this pus nearly always show gonococci. Even though a drop of pus is found in one place it seems wise to puncture the whole indurated area. When a pus cavity is found, the hole is enlarged a little to allow free drainage. Occasionally in making these punctures a small artery is struck. This bleeding is easily stopped by a fine catgut stitch. After all the likely places have been punctured, it is well to wash off the testicle and epididymis with warm salt solution to remove the evacuated pus and blood clot. A drain either of gauze or rubber tissue is then placed lengthwise along the epididymis and brought out at the lower end of the incision. The testicle is then pushed back into the tunica. In closing, our technic differs from Dr. Hagner's. Hagner and others in the series they have reported close the tunica separately with continuous catgut suture. We close the wound loosely with silkworm gut sutures that pass through all layers. This allows any hydrocele fluid that forms to work out. In some cases, where the tunica has been tightly closed, we have seen hydrocele fluid persist for some time. A large dressing is applied and held in place with a T bandage. The patient is then allowed to go home and take a cathartic, and if possible to remain in bed for a couple of days. He later reports to the clinic for dressings. The wick is removed on the third or fourth day and the stitches in about a week. Although we advise rest in bed, in some cases the patient has not quit his work at all. The day following the operation a patient is apt to have fever, but usually with little pain. At the end of about thirty-six hours the temperature becomes normal and remains so.

Many of these cases when they come in look septic, and are in great pain. There frequently is a rise in temperature and pulse. Even the first day after operation the entire aspect of the patient has changed. The sallow septic look has gone. The relief from pain is almost miraculous. A patient requiring morphia in large

doses before operation generally sleeps without any drug, even the first night after operation.

Epididymotomy is a rational surgical procedure. Belfield likens epididymitis to the pus tubes in the female, and recommends surgical interference. It is perfectly easy to see why the pain is intense. There is pus under pressure and no adequate means of drainage. The vas offers no sort of an outlet. Without operation nature has to take care of the process. It means the absorbing of the pus into the system. This is a long process and must result in more damage to the tubules during the process of resolution than they could be damaged by the use of the knife. It seems logical that the method that will check the inflammation in the quickest possible way will give the best chance for a functional epididymis. It might seem as though puncturing an epididymis would block a great many tubules. It may, but it certainly does not destroy so many as would multiple undrained abscesses. In one recurring case, in our series, with a duration of seven months, practically the whole of the globus minor was replaced by an abscess cavity holding fully a dram of pus.

In the very early cases, that is, within forty-eight hours from onset, there usually is no definite pus. There is a great deal of edema and thickening of the epididymis. Punctures are followed by a serous ooze. In most of the later cases definite small abscesses are found. The relief of symptoms is just as marked in those having no pus as in those that do have it.

In only one case have we had a recurrence on the side operated upon and that was many months after, following an entirely fresh gonorrheal infection, exposure admitted by the patient. It is interesting to note that this man returned at once and requested operation.

After epididymotomy we have been able to start local treatment for the urethritis earlier than on patients not operated upon. We feel that this is one of the strong points in favor of the operation.

In all our cases the posterior involvement has yielded readily to treatment after operation. Frequently they clear up with remarkable rapidity. One man who at the time of operation has decidedly bloody urine and marked posterior symptoms, had both urines clear with shreds two days after operation. In one case that had very slight posterior involvement we became over-enthusiastic and passed sounds on the tenth day after operation. There was no recurrence on that side, but it did produce an acute epididymitis on the other side. He requested immediate operation.

We now start anterior irrigation about a week after operation and at the end of another week or more, depending upon the amount of posterior involvement, pass on to dilatation, bladder washes and massage.

The question of the effect of this operation

upon sterility, of course, is important. The operation shortens the duration of the inflammation without any doubt, and it seems reasonable to suppose that anything that does this is going to give the tubules a better chance to remain patent. It is hardly justifiable in a unilateral case to open the vas to see if there are motile spermatozoa, and any attempt to massage a single vesicle is futile, so that we must fall back on those with a double infection for our data. From the cases thus reported, the number of double infections is too small to draw any very definite conclusions, but those that we can draw are favorable. They certainly prove that the operation itself does not produce sterility. Cunningham in his fifty-seven cases had six double ones. Of these six, four had motile spermatozoa. Hagner in his series of sixty-three cases had three double cases, two cases of which had motile spermatozoa after operation. We have had only two double ones, and in only one of those have we had the opportunity to test for spermatozoa. This man was operated on for a very severe double infection twenty-four hours after it started. There was no pus but much serous ooze. Two months after operation the condom test showed many motile spermatozoa. This man married two months after operation against advice. At that time both his urines were clear with no shreds. His wife has been examined and there is no evidence that she has contracted the disease.

Without operation it is generally conceded that at least sixty-five per cent. of the double cases are sterile. Some writers put it much higher than that.

We feel that the following conclusions may be drawn:—

1. Epididymotomy invariably gives immediate and permanent relief of pain.
2. There are no recurrences after operation unless there is a fresh infection.
3. The course of the epididymitis without question is shortened, as is also the urethritis.
4. Patients are probably less likely to be sterile.
5. Treatment of the urethritis can be begun much earlier.
6. The operation can be safely and successfully done in an out-patient clinic under local anesthesia.

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A STUDY OF LEPROSY: WITH ESPECIAL REFERENCE TO THE PULSE AND TEMPERATURE.

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(Concluded from page 638.)

STUDY OF CONDITIONS THAT MAY POSSIBLY INFLUENCE TEMPERATURE AND PULSE.

Weather. A daily chart showing outside and inside temperature, direction and strength of wind, rain, fog, cloudiness, unsettled conditions and fair weather was kept. Comparisons were made in an effort to demonstrate any change in temperature and in pulse. From this study it was concluded that external temperature had not the slightest effect on the temperature and pulse of patients. On January 13 and 14 the external temperature was 2° above and 0 F. The lowest temperature was 96°, the highest 101°. The lowest pulse was 62 and the highest 114. On June 22, 23 and 29, the external temperature was 82°, 80°, 84° F. The lowest temperature was 97.4°, the highest 101.8°. The lowest pulse was 60 and the highest 100. These figures were taken at random, being highest and lowest on these days, excluding complications. The days have likewise not been especially chosen, and are not the extreme of either heat or cold.

It is unquestionably true that on foggy and rainy or excessively warm days there is a more or less general depression, considering that the patients are then forced to be indoors and are given time to reflect on their condition. It is more than likely that this factor plays as large a part as the weather conditions.

During the winter months the patients have complained of minor ailments and called for

medical attention more frequently than during the spring or summer months. Various charts were kept to determine from different points of view the condition and character of the temperature and pulse during the year divided into seasons, into months and into periods irrespective of seasons. The following table B. attempts to give graphically these results. From this it will be noticed that, with the exception perhaps of high temperature in August and high pulse in January and in contrast the low temperature in February and March and low pulse in July, August and September, no differences are noticeable for months, seasons or patients.

It is interesting to state here that chills which occur in the course of the disease and which have a marked effect on the character of the temperature and pulse curves, occurred most frequently in August, September, October and November, and that the feeling of cold was complained of most in December, January, March and April.

Observations on Effect of Exercise, etc. In leprosy physical exertion, of whatsoever nature, will give rise to an immediate and fairly prolonged reaction in temperature and pulse. This statement depends largely on the stage and condition of the disease and patient. The more advanced the stage and feeble the condition the greater the rise of temperature and pulse and the longer the duration of the reaction. The greater the activity the more variable are the temperature and pulse. Case 15 played croquet off and on for less than one hour and rested for half an hour before temperature and pulse were taken. Temperature was 102°, pulse 88. In this case the average temperature and pulse had been 99° to 100° and 70 to 80. In the other cases the same exercise caused various increases of temperature from 1.5° to 2.5° and pulse rate from 18 to 30. In most cases the reaction was still evident twelve hours after exercise and in an advanced case it was the cause of a severe

TABLE B.

SHOWING DURING WHAT MONTHS THE TEMPERATURE AND PULSE IS HIGHEST OR LOWEST TO DETERMINE THE EFFECT OF SEASON ON CONDITION OF PATIENTS.

Name.	Months of		Months of	
	Highest Temp.	Lowest Temp.	Highest Pulse.	Lowest Pulse.
F. B.	August	Jan.-Feb.	Feb., June, Nov.-Dec.	July, Aug.
I. B.	*May, June-July	Feb.-Mar.	Apr., May, June, Jan.	Oct., July, Aug.
H. C.	No difference		November	August
M. C.	Sept.-Oct.	April-May	Apr., May, June	Aug., Jan., Nov., Oct.
L. D.	*Aug.-Sept.	Feb.-Mar.	Nov., Aug., Sept.-Oct.	June, July, Dec.
M. G.	*Nov., Aug.	June-July	Mar., May, Jan.	Sept., Dec., July
S. G.	*July, Aug.-Sept.	April, June	Dec., Jan., May	July, Oct., Sept.
H. K.	No difference		Jan., May	June, April
M. M.	No difference		July, Jan., May	Nov., Sept.
F. P.	*Oct.-Nov., July	Feb., Dec.	Oct., June, Nov.	July, Sept., Feb.
L. P.	*Dec.-Jan.	October	May, June, Jan.	Nov., Oct., July
W. Q.	Aug., Dec.	Mar., June-July	Aug.-July	June, April
A. T.	Jan.-June	Sept.-Oct., Nov.	Apr., Mar., Feb.	Dec., Oct.
Y. T.	*Jan.-Feb.	June	Jan., October	June, Aug.

Month of highest temperature is given first.

In case of slight differences more than two months are given.

Two months connected by hyphen show increase in latter part of one month and first part of next month.

* During these months complications or "toxic-febrile" attacks occurred.

indisposition of several days duration. In washing both floors and clothes, where a certain amount of friction is used, patients have shown marked local and systemic reactions. In one case the average increase of temperature is 1+ degrees and pulse 16+ beats, with constant skin reaction in the nature of bullae or inflamed abrasions. The more constant and graduated the exercise the less the reaction.

Results from Resting. The year of observation was divided into alternate periods of six weeks of rest for one-half hour before temperature and six weeks when patients came directly from the various occupations to the dispensary. This again was divided into a week period when some of the patients stayed in bed for temperature and pulse readings, and readings were also made when patients were indisposed for longer or shorter periods. Two cases are given here as an illustration, as typical of all cases (Cases 5 and 8.) Study of Chart 5 shows during the periods of rest a lower and more regular temperature. "Morning pulse" was present 65% of the time. During the exercise periods pulse exacerbations were more frequent and the rate more variable. In general temperature and pulse and respiration are much higher at both morning and evening readings. "Morning pulse" was present 42% of the time. Case 8 is an early case with infrequent and slight lesions and of good physical condition. The results of partial rest upon the temperature and pulse curves are similar to those just noted. Chart 19 illustrates the effect of complete rest upon curves in case 8.

Under Abnormal Conditions. Elsewhere it has been stated that temperature and pulse reactions occur from the slightest cause. This reaction which is most markedly shown by the sudden rise and pulse rate is dependent largely upon the general health of the patient and the character of the cause. In secondary infections, diarrhea, influenza, pleuritis and common cold,

there occurs an immediate departure from the typical temperature and pulse curves of leprosy, yet different from the reaction seen in a "toxic-febrile" attack. The severe prostration, general malaise, exhaustion and marked elevation of temperature and pulse are out of all proportion to the physical findings and the speedy recovery which follows. Chart 5, studied in comparison with chart 1, and then contrasted with chart 11 will better describe these changes. A daily study of the charts will usually immediately indicate the occurrence of some impending disturbance and is almost always corroborated by the patient in a day or two. In this manner many "toxic-febrile" attacks have been prognosticated and pus, usually in the extremities, has been demonstrated early in the disorder. As a result these attacks are shortened, if not aborted. A comparison of the charts showing "toxic-febrile," attacks and reactions due to exercise or excitement will demonstrate the difference in such curves. See charts 2 and 14.

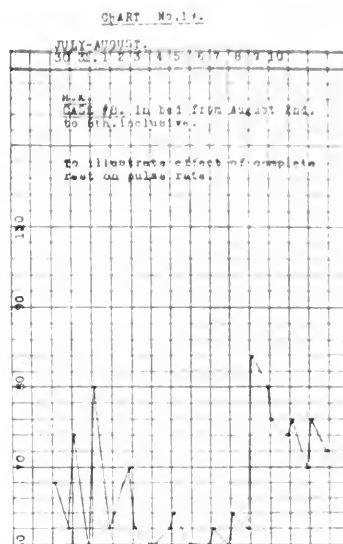


TABLE D.

GIVING THE PERCENTAGE OF "POSITIVE PULSE" INCREASE AND AVERAGE FROM JULY, 1913, TO JULY, 1914.

Month: Per Cent.	July. %	Aug. %	Sept. %	Oct. %	Nov. %	Dec. %	Jan. %	Feb. %	Mar. %	Apr. %	May. %	June. %	July. %	Average for Period.
F. B.	41+	50	41+	71+	48+	60	72+	50	—	—	—	77+	—	56+
I. B.*	68+	70+	73+	84+	86+	68+	85+	83+	81+	†63+	†60	†58+	36+	70+
H. C.	29+	38+	45+	†34+	46+	57+	—	—	—	—	—	—	—	40+
M. C.*	26+	32	28+	13+	45+	†45+	54+	38+	55+	48	†44+	44+	54+	40+
L. D.	†27+	†64+	†45+	†14+	†24+	†47+	†67+	†48+	†65+	74+	75	70	80+	60+
M. G.	61+	86+	57+	71+	57+	58+	73+	76+	75+	84+	†66+	69+	80+	70+
S. G.	†40+	†41+	†22+	†22+	42+	38+	†40	42+	34+	62+	79+	73+	40+	44+
H. K.	—	—	—	—	64+	81+	93+	68+	58+	71+	82+	95+	90+	78
M. M.	94+	88+	50	68+	60	48+	78+	74+	76+	91+	76+	86+	70+	73+
L. P.	72+	90	37+	57+	72	†67+	†54+	60	66+	75	70	76+	90+	67+
F. P.	88+	82+	†50	†42+	61+	67+	†41+	50	80+	82+	85+	73+	18+	63
W. Q.	31+	39+	39+	33+	48+	82+	72+	50	55+	65+	39+	74+	72+	53+
A. T.	66+	48+	66+	66+	76+	79+	92+	95+	78+	73+	86+	53+	70+	74+
Y. T.	15+	39+	63+	40	44+	69+	50	28	†73+	†60+	52+	61+	70+	51+

Explanation: * Incomplete months. † Question of pulmonary tuberculosis. ‡ Complications. † Only comfortable months.

Two other patients with uncompleted charts are not included here.

H. C. Case discharged as arrested.

W. Q. Patient has shown marked improvement.

L. D., S. G., and Y. T., are cases showing severe complications during year.

Table D is an attempt to show the reduced percentage of the occurrence of the high "morning pulse" rate, due to complications. The months of the year showing the fewest complications, give the greatest percentage of "morning pulse," *i. e.* March, April, May and June of 1914.

Effect of Medical and Surgical Treatment. All drugs, especially those used externally in leprosy, will have some effect on the patient's temperature and pulse. The general physical condition of the patient and the presence of ulcers or other lesions determine the initial course of the disease and when any specific treatment is undertaken, the result is looked for on the chart to determine the effect of such treatment in conjunction with objective and subjective symptoms. The daily condition of the patient is more largely dependent on the presence of pus or secondary infections, as seen in "toxic-febrile" attacks, and any drug which is used, such as iodoform ointment, acting directly on the ulcer and indirectly on the system will, if effective, produce a result that is observed by fall of temperature and pulse rate and particularly, in the character of the curves. This study has been without definite results and no conclusions can be reached, as many other factors are constantly entering into the study of the immediate reactions by the internal administration of drugs, which under the present system cannot be controlled. Only by the study of the cases during long periods can the efficacy of any treatment be obtained.

General Hygiene. Under this heading there has been included bathing, clean clothes, fresh air, food and as much as possible, the effect of clean surroundings. The result can only be summed up in a general statement by saying that cleanliness and fresh air are most important adjuncts in the treatment of leprosy and sufficient emphasis can hardly be laid on this question. The reaction observed after baths is not consistent, consequently no conclusions are

made. Table E is presented here showing the loss and gain in weight for the year under observation. Explanation of the figures is seen at the bottom of the table.

Effect of Mental States. In all cases there are periods of severe depression. Lesions associated with pain, disability or loss of appetite, produce the greatest proportion of these attacks. The temperature and pulse are lower during such times, with no other marked characteristic. Excitement, especially due to anger, produces a marked increase of pulse rate. This increase is often 40 beats and more above the individual's average rate. The reaction continues for a time not less than 48 hours and often for longer periods (see chart 2) and not infrequently ends in indisposition of varying severity, accompanied by rise of temperature, malaise and digestive disturbances. Pain which is sufficiently severe to need attention, will, without exception, give rise to first, an increased pulse rate and later to a rise in temperature, the height of each being entirely dependent upon the cause of the pain. Other conditions have already been mentioned which have a depressing effect on the patient's mind.

The Effect of Age, Sex and Racial Characteristics. With the exception of one case it has been difficult to arrive at any decision regarding the effect of age on the temperature and pulse curves during the course of the disease, when complications were not present. The exception is in a patient seventy years of age. Both the temperature and pulse rate are in general lower than the temperature and pulse rate of those patients whose stage and condition are similar to his. The irregularity is more marked and reactions from slight causes more numerous, severe and prolonged. In certain periods the temperature and pulse are below the normal. In this case it has not been possible to determine how great an influence his cardiac lesions affected the readings. With the women patients it has been observed that, excluding certain affecting

TABLE E.

SHOWING MONTHLY GAIN AND LOSS IN WEIGHT FOR TEN CONSECUTIVE MONTHS, COMPARED WITH WEIGHT IN APRIL, 1913, ALSO TOTAL GAIN AND LOSS FOR THE WHOLE PERIOD.

Name.	April.	1913. Dec.	1914. Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Total. Gain.	Total. Loss.
F. B.	142	141 $\frac{1}{4}$	136 $\frac{1}{2}$	131 $\frac{1}{2}$	132	141 $\frac{1}{4}$	146 $\frac{1}{4}$	146 $\frac{1}{2}$	129 $\frac{1}{2}$	128 $\frac{1}{2}$	—	13 $\frac{1}{2}$
I. B.	109	118 $\frac{1}{4}$	115	114 $\frac{1}{2}$	112	"III"	"III"	98 $\frac{1}{2}$	97 $\frac{1}{2}$	90 $\frac{1}{2}$	—	18 $\frac{1}{2}$
M. C.	123	122 $\frac{1}{4}$	121 $\frac{1}{2}$	125	127	128 $\frac{3}{4}$	126 $\frac{3}{4}$	125 $\frac{1}{2}$	121 $\frac{1}{2}$	120 $\frac{1}{2}$	—	2 $\frac{1}{2}$
L. D.	116 $\frac{1}{4}$	119	117 $\frac{1}{2}$	"III"	"III"	120 $\frac{1}{2}$	122	122	120	118 $\frac{1}{2}$	2 $\frac{1}{4}$	—
M. G.	117 $\frac{1}{2}$	120 $\frac{3}{4}$	123	121	121	118 $\frac{1}{2}$	117 $\frac{1}{2}$	116 $\frac{3}{4}$	117	119	1 $\frac{1}{2}$	—
S. G.	119 $\frac{1}{2}$	"III"	"III"	"III"	"III"	"III"	120	117 $\frac{3}{4}$	115	114 $\frac{1}{2}$	—	5
H. K.	130*	138	140 $\frac{3}{4}$	140	140	140	138	136 $\frac{1}{2}$	131	131 $\frac{1}{2}$	1 $\frac{1}{2}$	—
M. M.	193	195	196 $\frac{1}{4}$	197 $\frac{1}{2}$	199	194 $\frac{1}{2}$	195	193 $\frac{1}{2}$	190	188	—	5
L. P.	137 $\frac{1}{4}$	147 $\frac{1}{2}$	133	147	150 $\frac{1}{2}$	147	143 $\frac{1}{2}$	140 $\frac{1}{2}$	146 $\frac{1}{2}$	144 $\frac{1}{2}$	7 $\frac{1}{4}$	—
F. P.	135 $\frac{1}{2}$	128 $\frac{3}{4}$	"III"	"III"	"III"	"III"	117	119 $\frac{3}{4}$	116	118	—	17 $\frac{1}{2}$
W. Q.	127	132 $\frac{1}{2}$	129 $\frac{1}{2}$	131 $\frac{3}{4}$	131	128 $\frac{1}{4}$	135 $\frac{3}{4}$	130 $\frac{1}{2}$	126 $\frac{1}{2}$	122 $\frac{1}{4}$	—	4 $\frac{1}{4}$
A. T.	108 $\frac{3}{4}$	112	105	107 $\frac{3}{4}$	110	106 $\frac{1}{2}$	104 $\frac{1}{2}$	105 $\frac{3}{4}$	110	108 $\frac{1}{2}$	—	$\frac{1}{4}$
Y. T.	126 $\frac{3}{4}$	127	121 $\frac{1}{4}$	128	121 $\frac{1}{2}$	116 $\frac{1}{4}$	121	121	114	112 $\frac{1}{2}$	—	14 $\frac{1}{4}$

* November.

One patient discharged, gained in weight.

Patients in most advanced stages, show greatest loss of weight.

agents and temperament, the rate is higher, reactions are more marked and disturbances more frequent. There seems to be a nervous factor which may account in part for these reactions. In the case of racial influence, it can be said that suggestion and mental treatment are of value in the Jewish patients only. These patients need constant encouragement. They react to outside influences in a more marked manner than the rest. Their habits of living make treatment more difficult. In no specific way can it be said that these reactions predominate over the reactions of leprosy. It cannot be determined without longer study of more cases.

DISCUSSION AND CONCLUSION.

In normal individuals the temperature and heart rate fall and rise together in parallel curves.

The heart's action is modified by an increase in temperature and reacts differently according to the toxins produced by the agent causing the fever. Variations occur, especially when peripheral vessels and nerves are involved. This is seen in minor febrile troubles when a slight rise of temperature is accompanied by a fall in pulse rate.

In exhausting diseases, cancer, anemia, etc., increase in the heart rate is believed to be due to an intoxication. Researches have demonstrated conclusively that the heart is invaded by specific organisms and toxins, such as occur in rheumatic fever, typhoid, diphtheria, etc.

In febrile diseases it is considered that an increase of 8 to 10 heart beats should equal a rise of temperature of one degree and in such diseases a rise of temperature increases the pulse rate and a fall diminishes it, excepting typhoid and meningitis.

It is believed that toxins, produced anywhere in the body, may evoke a rise of temperature and pulse, together with other symptoms. In all infections there is always some general intoxication produced (Pearce & Austin).

Without a nervous control the vascular system fails to meet important conditions of the normal circulation.

The vasomotor regulation system is therefore important. The vaso-constrictor fibres are present in numerous nerve trunks, but especially in those distributed to the skin. They arise from and are connected with the central nervous system, and have sympathetic connection. It is well known that, if the peripheral nerve end be stimulated, strong constriction of vessels occurs with blanching of the part and an increase of arterial pressure (Howell). The vasomotor nerves regulate the supply of blood, and their action constricting the arterioles probably produces the cold feeling (McKenzie) so common in leprosy.

6. These "toxic-febrile" attacks are usually followed by a severe lesions, most often with lo-

cal swelling, pus, pustules, bullae and later ulcers and severe glandular involvement.

7. Most of the patients have a low hemoglobin index—averaging from 35 to 55%—and a leucocytosis varying between 14 and 17 thousand. The urine in almost all cases shows an albuminuria, casts, abundance of cells and acid-fast bacilli.

8. Terminal or secondary infections are most often the cause of death.

I am under obligation to Dr. Lesley H. Spooner for his kindness in correcting and criticising the manuscript and for many valuable suggestions. I take this opportunity of thanking him.

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Clinical Department.

A CASE OF AUTOTRANSPLANTATION OF BONE FOR NASAL DEFORMITY DUE TO SYPHILIS.*

BY LOUIS ARKIN, M.D., BOSTON,

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Rhinoplasty is the name given to the art of the surgery of the nose. Rhinoplastic operations are performed either to correct defects by replacing parts or the whole of the nose, or to reestablish functions lost by disease or trauma.

The substances used in rhinoplastic operations are inert materials or living tissue. The inert materials used may be metals, wood, rubber or paraffin. The living tissues used may be soft living tissue, such as skin, fat, muscle, periosteum; or hard living tissue such as cartilage or bone.

The methods used are first autotransplantation, that is, the use of tissue from one part to the other of the same individual; secondly, heterotransplantation, that is, the use of tissue from one individual to another; and thirdly, zoo-transplantation, that is, the use of tissues from lower animals in man.

This paper is a report of a rhinoplastic operation on a patient referred to me by my colleague, Dr. William B. Keeler. It was performed for the double purpose of restoring the function of nasal respiration, and for the correction of a nasal deformity for cosmetic reasons. The method used was that of autotransplantation of bone.

Family History. Nothing of importance with reference to this case. Married several years. No children.

Past History. Denies venereal. Several months before coming to see me she had some "discharge" from her nose for which she was treated for some

* Read before the Visiting Staff of the Mt. Sinai Hospital, February 11, 1915.

little time at the Massachusetts General Hospital, where she had her blood examined and a report of a positive Wassermann was given.

Present Illness. On her first visit to me on Feb. 22, 1913, I saw a woman of 29 years of age, married, of comparatively small stature, fairly well developed and nourished, but somewhat pale, and breathed through her mouth.

Physical Examination. Hair, color dark, somewhat coarse. No bald spots present. Temperature, 98.6. Pulse, 82. Respiration, 18. Pupils, reacted to light and distance and of equal size.

Tongue. Protruded straight and in the median line.

Teeth. Good condition.

Throat. Mucous membrane somewhat reddened, no patches, no abnormal discoloration; no membrane, no ulcerations nor scars present.

Skin. Dry, not sealy nor discolored.

Glands. Not generally enlarged.

Lungs. Both sides of chest moved equally, respiration and resonance good throughout.

Heart. Apex in the fifth left interspace inside the nipple line, not enlarged on percussion, no abnormal sounds or murmurs heard on auscultation.

Liver. Edge of liver not palpable below costal margin.

Spleen. Not felt.

Abdomen. Not distended, no abnormal masses felt, no pain nor tenderness.

Nervous System. Routine examination was without positive finding.

Report of a later examination of her urine while at the hospital was practically negative, except for an abnormal amount of leucocytes present and the slightest possible trace of albumin.

The general examination was, therefore, negative except for the following local condition of her nose:

Inspection of the front view of the outside of the nose showed that the part of the dorsum of the nose that extends from the anterior border of the nasal bones to the tip of the nose, presented a depression



Fig. 1.

or concavity (see Fig. 1 and Cast 1), causing the broadening of the nose at that place and a corresponding drooping of the facial expression in the same area, giving rise to a decided folding of the skin in the labio-facial angle.

Inspection of the side view of the outer surface of the nose showed a concavity of the anterior part, as in Fig. 2 and Cast 1.



CAST 1.



FIG. 2.

On palpation, the depression was found to begin just in front of the anterior border of the nasal bones and to extend down to, but not including, the tip. Touching the depressed area gave one a sense of non-support of the skin over this depression. Further palpation of the exterior showed that the tip of the nose was well supported by the columella and anterior part of the cartilaginous septum was intact; also that the cartilages of the alae were present, and that both inner and outer crura of the lower lateral cartilages were intact, and that the nasal bones were present and firm.

Examination of the nasal fossae or cavities showed that the nostrils were patent and of good size, but that that part of the septum just behind the nostrils, apparently corresponding to the depression on the outer surface, was bulging on either side, so much so, that it occluded both nasal cavities, causing her to breathe through the mouth. The mucous membrane of the nasal cavities was slightly reddened. On touching the swelling with the probe, it was found to be soft, not painful nor tender. The rest of the nasal cavities could not be made out on account of this bulging of the septum, which did not shrink with adrenalin. Posterior rhinoscopic examination only showed moderate hypertrophy of the posterior ends of the inferior turbinates.

Diagnosis. From this description, the most likely acute conditions present would be abscess of the septum, edema of the septum, hematoma and foreign body. It was not a local edema on account of the color of the swelling being red, rather than white or gray.

There was no history of accident nor any resistance on pressure to account for a foreign body or hematoma. There was no acute abscess, for she had no temperature; there was no pain or tenderness, and no pus nor blood obtained after introducing the needle of a glass hypodermic syringe.

As to the chronic conditions that might be present, tuberculosis was ruled out, for there was no tuberculous history, and no evidence of tuberculosis anywhere on the body. Tuberculosis of the nasal septum on the chances would give an ulcerated condition. If this were a neoplasm, the swelling would be hard if it were a fibroma. Sarcoma or carcinoma would result in a more or less rapid growth and an enlargement of the mass in all directions, and would, therefore, not give a depression of the nose. The symptom of cachexia was not evident. As to syphilis being the cause of this condition, it was quite likely, for syphilis is the frequent cause of such deformity, especially in the absence of accidents. So on Feb. 24, 1913, blood for a Wassermann test was obtained, and the report from Dr. Leary's Laboratory came back positive. She, therefore, had syphilis, and from her history of pus from her nose, several months previous, it seems that she had had a broken down gumma of the septum with pus formation at that time.

I explained to her the need of medicine before operation, and on March 3, and also on March 10, salvarsan was administered intravenously.

The next step was to correct the deformity. There are so many different varieties of deformities and no general rule of procedure for operation to go by, that each case is practically a law unto itself. In this case, we had two conditions present, the loss of nasal breathing, due to the occlusion of the nasal cavities by the swelling of the septum, and which, from our standpoint was the most important to correct; and the depression of the dorsum of the nose, which from the standpoint of the patient, was the real cause for seeking relief.

For such a moderate deformity, one would think of the use of the subcutaneous injection of paraffin to correct it. That method would, perhaps, not be out of place if that was all that we desired to do, but, the introduction of paraffin, besides the general objections to the use of it, would permanently increase the swelling of the septum and still further hinder the reestablishment of nasal breathing, so that paraffin here was positively contraindicated.

The fact that the tip of the nose was not affected and that the nasal bones were intact, it occurred that this case was a suitable one for the introduction of some solid support, one end to rest right at the tip of the nose in the median line between the two lower lateral cartilages, and the other end to rest against the anterior borders of the nasal bones, which place seemed to have some septal support. By this method it was thought that not only would the cosmetic factor be corrected, but that it would also lift up the septal mucous layers and thus re-establish the nasal breathing.

I decided that a piece of the anterior border of the tibia was suitable, for the reason that it was well suited as to shape and that it was easily accessible without damage to the patient.

On March 20, 1913, the patient was etherized, the nose and nostrils cleaned, the nostrils packed with sterile cotton, and an incision of about $\frac{1}{4}$ of an inch long made in the median line of the nose, just over the depression. The skin was separated from the underlying structures for a short distance laterally, and especial care taken to bare the anterior borders of the nasal bones from periosteum, and also to make a good depression for the reception of the anterior end of the transplanted bone. After this pocket was made, a piece of gauze was covered over the nose, and a piece of the anterior border of the right tibia $\frac{5}{8}$ inch long by $\frac{3}{8}$ inch wide, with its periosteum, was obtained and inserted into the pocket prepared in the nose after shaping the piece of bone for its new position. The transplanted bone seemed to give the nose a perfect contour, so the nasal wound was sewed up subcutaneously with horse hair. A small dressing kept in place with strips of adhesive plaster was put on. The leg wound was sewed up with five interrupted sutures and dressed. The patient made a good ether recovery. The patient left the hospital on March 28, nine days after admission. She made an uneventful recovery. Both wounds healed by first intention. While in the hospital, she received daily inunctions of unguentum hydrargrum. On the fourth day the nasal suture was removed and the parts kept in place by adhesive plaster strips. On March 30, two days after leaving the hospital, and ten days after the operation, the leg sutures were removed. On March 27, while in the hospital I referred the patient for a third injection of salvarsan.

On Apr. 3, she went home, down Maine, perfectly satisfied with the cosmetic results, and she breathed through her nose.

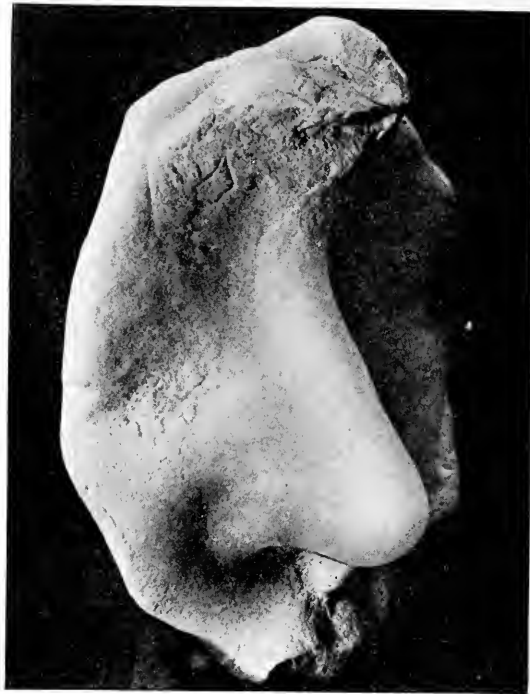
She reported again May 23, about nine weeks after the operation. The condition was perfect. The patient was delighted with the looks of her nose, and nasal breathing was excellent. The swelling of the septum was not apparent. The picture (Fig. 3) was sent to me and Cast No. 2 was taken the next day.



FIG. 3.

The operation reestablished nasal breathing by lifting up the ballooned-out septal mucous membrane and also corrected the nasal deformity.

I did not make my nasal incision intranasally for fear of infection from the nose itself, which would be likely to occur more especially on account of the lowering of resistance by the syphilitic process. I might have made my incision on the columella of the



CAST 2.

nose where it would not be likely to be seen, but the present wound, about nine weeks after the operation was not conspicuous and could not be seen except on close observation.

She was transferred to her local doctor in her own state with instructions to keep up the anti-syphilitic treatment, and his last report, Jan. 18, 1915, about twenty-two months after the operation, was that he had given her two doses of neosalvarsan since the operation, but that the end result of the operation was "extra fine," as he expressed it.

I report this case for the following two reasons: First, the importance of selecting the proper surgical procedure in each case; and secondly, the difficulty of making a diagnosis even after a thorough physical examination.

MYXEDEMA SIMULATING NEPHRITIS.

BY WM. DUNCAN REID, M.D., NEWTON, MASS.

THE surprising fact that this case was incorrectly diagnosed over a period of years, first by a homeopathic teacher of medicine and later by three general practitioners, one of whom was a homeopath, and by a nose and throat specialist, all of Boston or Greater Boston, is to us good evidence that a report of this case may be of suggestive value to some other practitioners. The writer frankly confesses that he only made the correct diagnosis as a result of reading the special lecture on "Thyroid Deficiency" delivered by Prof. Eugene Hertoghe, of Antwerp,

Belgium, at the New York Polyclinic Medical School and Hospital, April 14, 1914. This was published in the *Medical Record*, Sept. 19, 1914. Hertoghe's graphic description of his first case, of falling into the error of diagnosing it as chronic nephritis, as the physicians preceding him had done, and of finally diagnosing myxedema and curing the patient, almost describes our patient. The unusual number of impressive photographs of patients at different stages of the disease and Hertoghe's admirable exposition of thyroid deficiency, put his paper in a class such that to our mind all should read it. An abbreviated history of our case is as follows:—

MRS. G. O. 69 years, Aug. 6, 1913. Called to see patient for treatment of pain in lower back. Knew that patient was on nephritic diet and had had chronic nephritis for years, and saw no reason to doubt this. Urine, 2 quarts, clear, slightly acid, 1914. albumen, slight possible trace; sugar, 0.

Sediment, no casts or blood.

Sept. 6, 1913. Patient as before save for increased weakness. Pulse soft, heart sounds faint, some râles at base of lungs. Prescribed moderate stimulation and improvement was reported by phone. Both times gave unfavorable prognosis. On reading Hertoghe's paper we at once realized the correct diagnosis and asked permission to see the patient who, although practically bedridden, had not required a physician's services for over a year.

Nov. 7, 1914. History (from sister by persistent questioning).

Family History. Sister had thyroid trouble with generalized swelling at 65, and now takes thyroid medication regularly. Mother died at 79, preceded by 5 years of inanition. No children, no miscarriages.

Previous History. Good health first 4 decades of life. Denies rheumatism. Catamenia not thought to have been abnormal. Menopause at 45. About 20 years ago gradual appearance of "terrible sick turns" with nausea. Present condition believed to have begun gradually 10 years ago, when physician, a medical specialist, said she had chronic nephritis and should go to a sanitarium for treatment by diet, etc. Did not accept this advice, but remained under this physician's care for one year. In the past six to eight years each physician who has seen patient has warned family of impending uremia. Specimen examined June, 1914, at the Boston City Hospital Laboratory is said to have had very little albumen and no renal elements microscopically. Disagreeable hemorrhage a few years ago following extraction of a tooth. Up until 15 years ago patient was proud of a fine head of hair.

Present Illness. A continuation of the above with practical confinement to bed past five years. Weak, heavy, swollen, deaf, eyesight poor, always cold, never perspires, eats fairly well, dull. Never has headache. Much lumbar pain of moderate intensity. Complaints of difficulty in swallowing, and of being "so stupid."

Physical Examination. Lying propped up on pillows. Much bloated. Hears with difficulty, replies sluggishly and dropped asleep several times during examination. Voice has a surprisingly thick, coarse and husky tone. Marked alopecia extending to parietal and occipital regions, partly concealed by manner of arranging hair. Eyebrows thin. Cir-



Mrs. G. O., Nov. 14, 1914.

cular area about 2 inches in diameter of pinkish flush over each cheek bone. Extreme puffing above and below eyes, which with marked chemosis of left conjunctiva almost closes that eye. Lips very thick, tongue swollen, teeth absent save for few necrotic snags, gums thickened, and all buccal mucous membranes present thickened and grayish appearance.

Neck, very thick, no palpable glands. Chest covered with thick pads of tissue, obscuring landmarks. Lungs appear normal save for few râles at bases. Heart, area not enlarged, apex in nipple line. Impulse not felt. Sounds faint, no murmurs. Pulses, equal, very soft, regular, rate 80. Lower back and legs pit slightly on prolonged pressure. Reflexes normal. Skin very dry, thick and scaling in many places. Nails rough and lined.

Blood pressure, systolic 140, diastolic 85.

Urine, normal, cloudy, acid, 1017, no albumen, no sugar. Sediment, squamous cells and detritus. Few small hyalin and granular casts seen. Repeated examinations later failed to show but a small trace of albumen with moderate number of hyalin and granular casts. No fat or blood seen at any time. No acetone or diacetic acid.

Hemoglobin 60%.

Treatment. Compressed tablets of thyroid gland desiccated (Parke, Davis and Company), gr. 1 t.i.d., controlling dose by daily weighing of patient.

Subsequent History. Within one week the change was theatrical. Great diminution of edema with entire change of appearance of face. Patient became lively and happy, speaking intelligently and in a rather musical and soft voice. Hearing greatly improved. At end of second week patient heard church bells ringing, the first time for 5 years. Skin desquamated freely and gradually took on a nearly normal appearance. All this was accompanied by some nervousness, itching, pain in the limbs, elevation of pulse rate to 105, and at first profuse diuresis. Weight (not obtainable at first) was 139.5 lbs. on Nov. 19, although it was obvious that a marked drop in weight had occurred since the starting of the thyroid therapy. Weight rose slowly to 144 lbs. about Nov. 28, perhaps due to our letting up a little on the amount of thyroid administered.

About Dec. 1, 1914 broncho-pneumonia set in. All other improvements in patient had increased in amount.

Dec. 5, seen in consultation by Dr. Edward N. Libby, of Boston, who absolutely confirmed the diagnosis of myxedema with broncho-pneumonia as a complication.

Ophthalmoscopic examination (by Dr. Libby) showed normal fundi save for slight blurring of the edges of the optic disks.

Dec. 7, 1914. Death from broncho-pneumonia.

Remarks. This case in its final state resembled chronic nephritis mostly by the general aspect of marked edema and the small trace of albumen often present. Among the strong points aiding in the correct diagnosis were, the absence of hypertrophy of the heart, increased blood pressure, casts with fat, blood or cells on them, or nephritic changes in the fundi. The trophic changes in hair, teeth, skin and nails, generalized edema, with but slight pitting, erythematous patches on the cheeks, hebetude, deafness, changed voice, chilliness, absence of perspiration,—all are consistent with diagnosis of myxedema.

The history of severe hemorrhage after extraction of a tooth is suggestive of thyroid deficiency.

The long duration of a condition in which several different physicians warned of impending uremic convulsions without even the occurrence of a headache in the patient, pointed to a possible error in diagnosis.

The family history is of significance, and we find by reading various papers by Hertoghe and others that the digestive attacks may have been connected with disturbance of the thyroid gland.

The result of the thyroid therapy was conclusive. We believe the broncho-pneumonia to have been merely an unfortunate coincidence.

Personally knowing the high calibre of the men who erred in diagnosing this case we believe that there are other cases of this type which can be recognized if those in charge will again consider their patients, with myxedema as a possible diagnosis.

Reports of Societies

FALL MEETING OF THE NEW ENGLAND BRANCH OF THE AMERICAN UROLOGICAL ASSOCIATION.

HELD AT THE HARVARD CLUB, BOSTON, NOV. 30, 1914.

President, A. L. CHUTE, M.D., Boston.
Secretary, R. F. O'NEIL, M.D., Boston.

Presentation of patients, specimens, instruments, and the reports of cases.

RUSTLESS SOUNDS.

DR. O. R. T. L'ESPERANCE, Boston: About two years ago I tried to get some rustless sounds, and wrote to different manufacturers in the United States. Mr. Bard took upon himself the trouble of writing abroad to some of the foreign houses, but we did not get any encouragement. They did not seem to know of any metal that could be used.

Finally, here in Boston, I happened to find a die-maker who said that he thought he had the metal that would do, and he submitted a sample of a sound. I tested it by leaving it in the sterilizer

twelve days, boiling anywhere from six to nine hours a day, and it showed no signs of rust or wear and tear. I immediately gave him an order to make up a set of sounds.

They differ slightly in shape from the ordinary sound. The dilatation is between two points only, and the end is a little more tapered than the average sound, allowing more gradual dilatation. The old sounds are very blunt, and sometimes you have trouble in getting them started. As the meatus is the smallest part of the canal, the patient often complains of stretching at that point. The shaft of this sound is well graduated toward the handle so that there is no discomfort from prolonged dilatation. The feeling of the metal is very smooth and velvety. It does not lose this quality, and as it is not plated, rough places will not form.

In regard to the cost of this sound, the man said they could be made up for a dollar apiece, so that when you were paying eighty cents for the old sounds originally, and then paying extra to have them re-plated, it would really be economy in the end to have these.

The metal is nickel steel. Its melting point is about 1360° C., which ought to stand the average boiling.

SPECIMEN OF PYONEPHROSIS IN INFANTILE(?) KIDNEY.

DR. HORACE BINNEY, Boston: This patient was a young man about thirty years of age, whose past history was that ten years ago he came to the hospital with some urinary symptoms, frequency and slight pain, which promptly yielded to treatment in the out-patient department. His history subsequent to that time was negative.

Three months ago he began to feel mean, as he expressed it, lost weight and had a recurrence of his former symptoms, frequency and pain. He was examined in the out-patient department, and cystoscopy by the man on duty there, performed, who found an inflamed condition about the right ureteral orifice. Catheterization showed pus coming from the right kidney. Urine from the left kidney was normal, and the combined renal function was normal by the "red" test. From the fact that he had lost weight and had had night sweats, besides the urinary symptoms, we thought it was probably tuberculosis. The man was pretty uncomfortable, and we decided to operate. I started to take out what I supposed would be his tubercular right kidney. In getting down to the kidney region, I found a good many adhesions to the peri-renal fat, and blunt dissection failed to reveal any kidney. I got up to the liver before I discovered that there was not any kidney there. I then went lower, dissected out the ureter and followed that up into an indefinite, soft mass of what seemed at first to be fat, and shortly I made out a perfectly soft flabby renal pelvis, with no kidney, which it was not difficult to remove.

The specimen has been split on the median side, so that you are looking towards what there was of a renal cortex. There appears to be a slight degree of pyonephrosis.

Dr. Mallory examined a small bit of the cortex and found a few tubules. His first impression was that it was the result of early pyonephrosis of a normal kidney. I asked him if it could not be an infantile kidney, and he is not prepared to say it is not.

These things are apparently pretty rare. I have not looked over the literature at all thoroughly, but I



FIG. 3.—Congenital Aplasia of the Kidney. Renal pelvis laid open exposing pelvic aspect of dilated calyces. Probe in ureter.

did find an article by Braasch, who had seen seven, only one of which was diagnosed clinically. He says it is almost impossible to diagnose them, but he does not state how the diagnosis was made. Of course, catheterization of the ureters may give light.

But, practically, a catheter cannot always be kept in long enough to make sure that we get a sufficient quantity. I do not know how one can be sure of making the diagnosis, particularly when the urine contains pus, suggesting that the low function is the result of renal destruction.

DISCUSSION.

DR. H. CABOT, Boston: Apropos of the sounds presented by Dr. L'Esperance, it seems to me that they would be particularly valuable for hospital work. We all know that in hospital work sounds get into shocking condition, and often do more harm than good. At the hospital we have three sets, and with at least one of them constantly being fixed, you never have a decent sound in the place. If there is such a thing as a rustless sound, I have no doubt the hospitals would be glad to know about it.

I am interested in Dr. Binney's case. Dr. Geraghty raised that question, and pointed out that the diagnosis could be made on an infantile kidney by systematic tests of function and disproportion between the kidneys. We have had one case of a patient in the medical wards, and there was disproportion between the kidneys.—a small though normal kidney on one side, and a large normal kidney on the other. There was some chronic nephritis on both sides. The patient died of chronic arteriosclerosis. Almost all the work was being done by one kidney, though the time of function was equal and symmetrical. These kidneys are normal except that they are small. They will do everything except a normal amount of work. They will start function on time.

SPECIMENS OF CALCIC OVALATE CALCULI.

DR. GEORGE A. MATTESON, Providence: I have to show 10 "jackstone" calculi removed from the bladder in a case of prostatic hypertrophy. They were lying free in the bladder and were easily removed at the preliminary cystostomy. Stones of this form are said to consist of pure oxalate of lime. They are well pictured in the frontispiece of Kelly and Burnam's book. Every gradation of their development is shown in my specimen, from the smooth sphere to the many-branched coral-like forms.

DISCUSSION.

DR. J. B. BLAKE, Boston: This sound reminds me of a set which were in use in Vienna twenty-five years ago when I was there. They had in common this taper in the bend, but differing from these the Vienna sounds were at least two inches longer, and correspondingly heavy. They were so long that with a little care they would almost fall into the bladder without having to be pushed in, which is a considerable advantage.

I should prefer them if the curve was a little less sharp and a little more flattened at the point. I should think it would hardly be necessary to make them quite so tapering toward the handle.

In regard to the stones which Dr. Matteson showed, I had a similar case of five stones, thicker and a little larger than these, but the same unusual shape.

SPECIMEN OF URETERAL CALCULUS.

DR. R. F. O'NEIL, Boston: This calculus was passed by a patient whom I saw a short time ago. You see it is over $\frac{1}{2}$ inch long, $\frac{1}{4}$ inch thick, and very rough. Some months previously he had had symptoms referable to the right upper quadrant of the abdomen and was thought to have gall-stones. X-ray at that time failed to show the calculus. There was nothing in particular to point to the kidney. Later he had a typical attack of renal colic with hematuria and I was asked to cystoscope him. On doing so, I found this calculus protruding part way from the very edematous right ureter. I tried to dislodge it with a ureter catheter, but succeeded only in pushing it back. I then injected oil into the ureter, thinking he would probably pass the stone, which he did, but he had considerable difficulty in passing it through the urethra.

BILATERAL URETEROSTOMY FOR PALLIATION IN A CASE OF TUMOR OF THE BLADDER.

DR. R. F. O'NEIL: These are photographs of a patient upon whom I performed a bilateral ureterostomy about 5 weeks ago. He is a man of 60 with the following history: He first came to the Hospital about $21\frac{1}{2}$ years ago with an acute retention due to clots. The bladder was half way to the umbilicus, and clots and fresh blood oozed from the meatus. A cystoscopy was done, but beyond the fact that there was a growth near the base, nothing more could be made out because of bleeding. He was sent into the House and Dr. George G. Smith did an immediate suprapubic cystotomy under spinal anesthesia (the patient's condition was poor, he having a bronchitis and rapid pulse), and removed a papilloma about the size of a small walnut near the right ureteric orifice. It had a small pedicle and part of the bladder wall was resected as well. The patient made a good operative recovery and left the Hospital in two weeks.

He failed to return for observation as directed and was not seen again for about six months, when he came in because of a return of the hematuria. Cystoscopy at that time showed a recurrence at site of original growth and other smaller tumors at different points. He was treated by high frequency applications, at first with apparent success, but he was irregular in his attendance and cystoscopy became more difficult. The character of the large growth had changed to a broad based tumor, involving the right ureter, and he was having pain and tenderness in the right kidney region. His urinary symptoms were distressing. It was evident that no partial resection of the bladder was possible, so he was sent in for this preliminary side-tracking operation, to be followed by total cystectomy with hopes of obtaining a radical cure. At the time of the ureterostomy, however, I was able to palpate the pelvis and found a chain of glands along the sacrum and extending up the right side of the spine, which has precluded any attempt at complete cure by further operation.

The usual oblique skin incision was made just inside the crest of the ilium, and by means of a muscle splitting operation, the ureters were picked up extra-peritoneally at the brim of the pelvis, freed down towards the bladder, cut and then freed to the kidney. The ends were brought out by means of a clamp through a stab wound in the back, at a spot on the skin which had been previously marked as the best place to apply some form of apparatus. Care was taken that the curve of the ureter should be gradual and free from kinks, the ends of the ureters were not sutured to the skin, but left protruding about an inch and a half. (See cuts Nos. 1

which connect with a receptacle in front. (See cut 4.) There is no irritation of the skin and so far no renal infection.*



FIG. 3.—Bilateral Ureterostomy.

Six weeks after operation. Ureters have been trimmed off close to the skin.

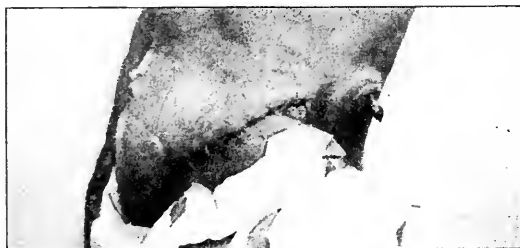


FIG. 1.—Bilateral Ureterostomy.

Two weeks after operation. Lateral views. Note protrusion of ureter.

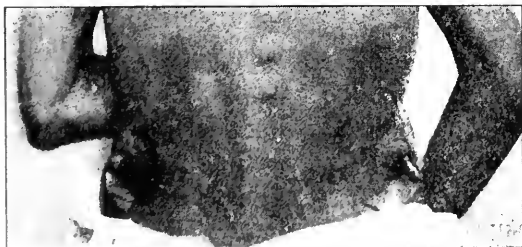


FIG. 2.—Bilateral Ureterostomy.

Two weeks after operation. Back view. Note protrusion of ureters.

and 2.) The right ureter was distinctly thickened and peristalsis was active. The ureters function normally and a jet is thrown several inches. He has been kept perfectly dry by means of an improvised apparatus made of soft rubber ring pessaries and glass tubes kept on with plaster straps and leading to a small bottle on each side. A permanent apparatus is being made, consisting of two cups



FIG. 4.—Bilateral Ureterostomy.

Permanent drainage apparatus.

* Since reporting this case, it is of interest to add that infection of the cut end of the right ureter took place following the slight operation of shortening the stump and the patient developed a typical attack of pyelitis with temperature, due to colon bacillus.

The ureters became somewhat edematous, but sloughed only a little. As they have probably retracted all they are going to, they were cut off close to the skin this morning, as they were too long to admit of an apparatus being applied. (See cut 3.)

As has been said, the complete procedure cannot be carried out in this case. But as a palliative procedure, I consider it a success. The man is entirely relieved of his symptoms, is kept dry and will shortly go home when his apparatus is ready.*

DISCUSSION.

DR. H. CABOT, Boston: I think the point of this operation, at least the point so far as I am concerned, is that the operation done in this way enables you to make your patients comfortable. In the past I have not believed that the patients were essentially more comfortable than they would be with a cystostomy. The point of difference is that in the first place we bring the ureters out in the back at a point where an ordinary glass tumbler will fit between the crest of the ilium and the ribs. Mark the outline of it. Bring your ureter out in the center of that circle, pull it out and leave it dangling in the air so that it can adjust itself where it wants to. Do not cut it off at all. The result is that you have a projection here to fit your apparatus over. The difficulty with the previous methods I have used is that, instead of having a projection over which to fit apparatus, you have a hole. It is the simplest thing in the world to fit an apparatus over a ureter brought out in this way. We have now another patient operated on some six months ago, a woman with cancer of bladder secondary to cancer of uterus. She has no trouble, has gained weight and keeps perfectly dry.

This will go a long way to make me use this method as against nephrostomy, which I have found more difficult and carrying a greater mortality.

DR. GUY L. HUNNER of Baltimore read a paper entitled,

RARE TYPE OF BLADDER ULCER IN WOMEN. REPORT OF CASES.¹

DR. A. H. CROSBIE of Boston read a paper entitled,

EPIDIDYMYOTOMY FOR ACUTE EPIDIDYMITIS AS AN OUT-PATIENT PROCEDURE.²

DISCUSSION OF DR. HUNNER'S PAPER.

DR. A. L. CHUTE, Boston: Dr. Hunner's cases of ulcer of the bladder seem to be confined to women. Perhaps that is because Dr. Hunner confines his practice entirely to women. I have seen recently a man who has three ulcerated spots on the posterior bladder wall, that are like the conditions Dr. Hun-

* Feb. 17, 1915. The patient left the hospital shortly after the above report and returned to the out-patient for observation. He said he was greatly tortured by passing thick material from his bladder and brought in a bottle containing several ounces of thick body foul fluid. This condition, a secretion from the growth, came worse and he was readmitted, some days passing 6 or 8 ounces of fluid. Because of this I did a suprapubic cystostomy under spinal anesthesia and with the curette and cautery removed much as I could of several large growths. This operation gave relief, the suprapubic fistula remains but gives no trouble. Following this he complained of pain becoming more severe in the right sacral regions. We thought this was probably due to extension of the growth; finally a tender spot developed about the middle of the right border of the sacrum. There was no temperature and it was thought he might have an abscess, the area was aspirated but nothing obtained. An abscess, however, did later develop at that point, and was opened. I think it undoubtedly came from infection and extension of the growth outside the bladder. The ureterostomies are still working well.

ner describes, but more intense. I have been unable to find an etiology for this condition and have been treating him for a short time with applications of the high frequency current, without, as yet, any particular change.

DR. H. CABOT, Boston: I find myself handicapped by the fact that I do not feel as if I knew anything about it.

It is fair to say that I have seen a group of cases which may well prove to belong to this class, in which the symptoms are very much those which Dr. Hunner describes, and I have not found lesions which seem to account for these. I have not been sharp-sighted enough. I have been looking for more gross lesions, and I have not seen them. I shall be interested to look for this lesion because there is a group of irritable bladders which most of us have regarded as not clearly organic.

The very slight changes in the urine I have been inclined to attribute to the urethra. As far as I am concerned, this opens up a very interesting field for looking over cases which I have previously overlooked.

DR. H. C. PITTS: I should like to speak about a patient of mine who has given me a varied experience for a number of years.

She was referred to me some eight years ago with a history of very persistent bladder symptoms, extending over a period of fifteen years. At one time she had had an opening made in the bladder, and left open for four months without benefit.

I cystoscoped her and found one of those angular ulcers at the right vertex. I treated her for several years with silver nitrate and bichloride instillations, and with over-distention, but made no direct applications at that time. She finally consented to operation.

With the bladder open, I found it extremely difficult to locate the ulcer. I excised what I supposed was the ulcer, but probably did not excise enough of the bladder wall, because she had a return of symptoms soon after leaving the hospital, and the cystoscope showed a return of the ulceration in about the same location.

I treated her after that, at first with direct applications of strong silver nitrate solution and later with fused silver nitrate on a silver probe. At the present time the ulcer is healed, and her old symptoms are gone. She does have some frequency, which I think is due to a contracted bladder. When I treated her before with over-distention, the only result I got was hemorrhage and an increase in symptoms, but lately when I have distended the bladder, there has been no hemorrhage, but a decided lessening of the frequency. Frequency is the only thing she complains of at the present time.

DR. J. H. CUNNINGHAM, JR., Boston: I have listened to this paper with much interest and feel that we may owe much to Dr. Hunner, for presenting to us a subject which, so far as I know, is an entirely new interpretation of a lesion which we occasionally observe in the bladder.

I have been very much disturbed by having patients come with the symptoms which Dr. Hunner describes, and I feel sure that I have observed, at times, the sort of lesions that he pictures, but I have never attached the importance to them that Dr. Hunner does, and yet I have seldom found other lesions to account for the symptoms.

The psychology of the nervous woman is something that has always disturbed me much, and I

¹ See page 660.

² See page 664.

have been inclined to pass these small lesions by when I have found them and attributed the symptoms to some other disturbance not determined. There is no question that these women are suffering (the cases I have seen have been women), and I have seldom been able to do anything for them.

On a few occasions, I have found the condition described associated with a caruncle. By removing the caruncle these patients received much benefit, yet the symptoms sometimes recurred, and it may be that the rather extensive operation which Dr. Hunner advises is the correct procedure. I shall be much interested to learn Dr. Hunner's view after longer experience with this condition and the operation that he advises.

I would like to know what the histology and the bacteriology of these ulcers may be, if it has been worked up.

DR. FRANK A. PEMBERTON, Boston: I have one patient similar to those Dr. Hunner describes. I have taken cultures of her urine three times and found no growth. I cauterized the area a year ago with silver nitrate; she was much better for a month, and then her symptoms returned. She has had all kinds of local treatment and is no better.

DR. G. O. CLARK, Boston: I have nothing to add, but I should like to ask Dr. Hunner whether these lesions are seen as easily with the Nitze cystoscope as with Dr. Kelly's method.

I am also very much interested in the histology of the ulcer, and should like very much to see it microscopically.

DR. G. G. SMITH, Boston: I have seen two or three women with symptoms such as Dr. Hunner has described, one of whom I was unable to help, and another whom I did help a great deal by dilatation of the urethra. She seemed to be very similar to some of the cases of Dr. Hunner. She had a little pus and blood in the urine and at first a few cocci and bacilli in the urine. These disappeared, and her symptoms were entirely relieved.

Closed by DR. HUNNER: Dr. Chute spoke of the high frequency treatment. Thus far I have treated only two cases in this manner, and each case had excessive pain afterwards and refused to have another treatment. As I stated, my last case is still being treated by applications of ten per cent. silver nitrate and is being kept fairly comfortable. I have intended trying the applications of the silver nitrate stick, or direct cauterization with the electric wire. It would seem that if anything will take the place of excision for these cases it will be some such radical measure that will get deep enough to clean up the floor of the ulcer.

Dr. Cabot thinks that he may have seen one or two of these cases and overlooked them because of the slight mucosa changes. This is one characteristic of these cases. The white scar tissue is as likely to attract your attention as is the slight congestion area. If you are in doubt touch them with an instrument over the congested area and see if they do not ooze.

I have been pleased in reading Dr. Tenney's paper on "Cystitis—An Incomplete Diagnosis," and believe that we are dealing with a class of cases which will take another fairly large group out of that limbo of our ignorance, the so-called "irritable bladder."

Dr. Cabot says that he found slight changes in the urine, which he attributed to urethritis. In men you have to differentiate with your multiple glass

test. In women the presence of any leucocytes or red blood cells in a catheterized specimen of urine indicates that you should find out what they are due to because they are never present in normal urine. You might get a few red blood corpuscles from injury from the catheter if the patient happens to have a lesion in the sphincter urethrae.

I am glad that Dr. Pitts mentioned his case treated with four months of vesicovaginal fistula. From the fact that she failed to get well with this long drainage I should say that she probably belongs in this class of cases. My experience in treating badly infected cases with multiple ulcers, covered with incrustations, by making a drainage fistula and instituting irrigations has been a happy one. One exceptional case had the fistula about three years before healing, but I think eleven weeks was the longest any of the other cases required; you will see by reference to Case 5 that she had the fistula six months, with relief only as long as the fistula was open, just as in Dr. Pitts' case. If a woman were given the choice between a fistula, with its disagreeable consequences for four to six months and the two operations of making and closing the fistula, she would probably choose the slightly more extensive operation of excision with prospects of being well in a month.

Dr. Cabot has just asked me whether there are extensive blood vessel changes in the microscopic specimens. There is a considerable increase in vessels in some of the ulcer areas and an increase in the number and size of the vessels in the mucosa immediately surrounding the ulcer. The vascular changes are not excessive and the microscopic picture corresponds with what one would expect from the comparatively slight changes in the cystoscopic picture.

Dr. Cunningham has rightly said that the psychology of the nervous woman puzzles us all, but it is one of the most real things I have seen in surgery to see the change in the patient's expression after these operations. One patient said she had not realized what a general nervous tension she had been on for years and she was afraid to leave the city after leaving the hospital, dreading that her bladder trouble might return. Dr. Cunningham asks about the bacteriology. As I stated, if I found bacteria in the urine of any similar cases, I would not place them in this class but would consider them as belonging to the ordinary infectious type of bladder ulceration.

Dr. Clark asks about the comparative value of the Nitze and Kelly methods of cystoscopy. I have discussed this point rather fully in the text, giving my reasons for preferring the Kelly method in these cases which show comparatively slight mucous membrane changes.

DISCUSSION OF DR. CROSBIE'S PAPER.

DR. J. H. CUNNINGHAM, JR., Boston: Dr. Crosbie's paper interests me very much as I have been doing and advocating this operation since 1906, during which time I have done well over 100 cases. I cannot understand why this operation of drainage of an infected epididymis does not appeal more generally to surgeons. Apparently it does not, but I think that it should, as it is simply applying the principles of drainage to an acutely infected structure with the same beneficial results here as in other structures elsewhere in the body.

In some cases I have taken small pieces of the

iseased epididymis for pathological study. In the early stages of the disease the ducts are distended with polymorphonuclear leucocytes, and among them are also phagocytic endothelial leucocytes. In places the lining epithelium is destroyed and the exudation is continuous with an extensive infiltration of the connective tissue spaces about the tubules.

In places the tissue has been destroyed and dissolved so that small abscesses exist. At the periphery of the acute process there is some infiltration with lymphocytes and some fibro-blasts. Within some of the leucocytes are flattened diplococci, which are Gram negative.

In the later stages of the disease the intertubular connective tissue is much increased and contains leucocytes and gonococci, both intra- and extracellular. Such a pathology should argue for drainage. We are all sure that recurrences of epididymitis are not uncommon and I have found the gonococcus in the epididymis eight years after the infection.

In regard to certain observations associated with the operation. In practically all the cases that the material from the punctured epididymis had been examined, eighty per cent. show growth of no other organism than the gonococci and in the remaining twenty per cent., pus without the organism. The urethral discharge, as a rule while it returns, is not so severe, and we believe that in some cases the disease in the other organs has been shortened by the operation. Of course the vesicles and prostate must retain the product of inflammation and must be treated. The operation is simply an operation on the epididymis and the prostate and vesicles must be treated afterwards. I have employed the Belfield operation together with epididymotomy in our cases, and they did not do any better than when epididymotomy was employed alone.

The subject of sterility has come up. I have had eight bilateral cases, six of which showed spermatozoa following the operation. One case showed tuberculous plus a gonorrheal process on one side. There are no reliable statistics on the subject of sterility following bilateral epididymitis, but the much quoted statistics of Burla have created the impression that sterility results in about forty per cent. of such cases. Dr. Crosbie says the number of operative cases are very small, but the percentage of cases not sterile following operation is not larger at any rate than those not operated. In fact, the evidence, such as it is, favors operation in preventing sterility.

Now in regard to the technic of the operation. There is nothing to add other than the fact that I believe that the scrotum should be opened and the fluid of the secondary hydrocele allowed to escape. I do not believe in puncturing the epididymis from behind and leaving the hydrocele fluid. The epididymis is punctured from within the tunica vaginalis, and I always squeeze the epididymis after doing it to express as much of the inflammatory product as possible. The puncture goes through the fibrous capsule, and the rest of the investigation of the epididymis must be done with a probe so as not to sever the tubules.

The one feature to which I wish especially to call your attention is the closing of the scrotal wound. I have employed this method of closing the scrotal wound for several years, not only in connection with epididymotomy, but in all operations upon the

scrotum, and I have never had a post-operative hematoma or ecchymosis. Bleeding into the lax scrotal tissues is certain to occur if the cut edges of the dartos are allowed to retract and are not again recovered and sutured. I have found that catgut is not well taken care of in the scrotal tissues and for these reasons I devised the following procedure, which has proven most satisfactory. Two mattress sutures of silkworm gut are passed through all the layers of the scrotal incision on both sides of the wound and tied over a rubber tube on either side of the incision. The two tubes thus serve as a clamp, extending the length of the incision. The skin edges are then united by a subcutaneous silkworm gut suture. These tubes are removed in 24 hours, having served their purpose of controlling hemorrhage and adhering the tissues.

To conclude, I think this operation, if judged simply by the postoperative results, is to be recommended. There is certainly no pain after the patient recovers from the anesthesia. There is a rapid drop of temperature, and the leucocytosis, which is often high, goes down very rapidly, and the patient recovers and returns to his work about five times as rapidly as by the expectant form of treatment.

Dr. H. BINNEY, Boston: There is a sub-class in this group of cases, in which I think an operation should be done under such circumstances as Dr. Crosbie has done it. This is the class where the infection is entirely in the globus minor. The bacteria seem to stop there, and do not cause inflammation in the globus major. The operation is so simple that it is particularly desirable, and consists of making an incision down to the globus minor, puncturing it, and in some cases incising it, where a considerable amount of pus comes out. In one case there was as much as a drachm, and in that case a drain was put into the cavity.

Dr. Thorndike has done that in a good many cases, and following him I have found it very satisfactory and prompt in relieving symptoms. It seems to be just as effective as doing the more radical operation. I have not done it in any cases where there is a large amount of hydrocele. In those cases I believe in a more thorough operation.

Dr. L'ESPERANCE, Boston: In the after-treatment of these cases I am sure the patients would be more comfortable if the Alexander bandage was employed rather than the T-bandage, such as Dr. Crosbie has described. This bandage has the advantage over the T-bandage in that it holds the dressing firmly in place, and does not have to be removed for care of the bowels.

Dr. H. CABOT, Boston: I want to point out what seems to me the strength of Dr. Crosbie's contribution this evening. It is that these cases may be operated upon in a dispensary service, not in hospitals. You simply cannot get beds for them in the hospital.

Dr. Crosbie has done that which I, for one, would not have had the courage to do. The cases have come to us in the out-patient, and we have referred them to the house, with the full knowledge that they would not get in. I knew it to be futile.

Dr. Crosbie has had the courage of his convictions, and has done the thing, and it satisfies me that we can now manage these cases, as we believe they ought to be managed.

I am quite with Dr. Cunningham in his view that this is the best method, but we have not had the

courage to apply it, until Dr. Crosbie shows us how to do it.

DR. A. RILEY, Boston: One of the best "boosts" that we have for this operation is the testimony of those who have had it performed. The other day I operated at the Dispensary on a colored man who hesitated a long time. I finally turned him over to the patients who had been operated upon. There were five on the seat at the time; they all got around, advised operation and convinced him.

This case had had acute symptoms for three days, and I found a pus cavity as large as the end of the ring finger in the globus minor.

Closed by DR. CROSBIE: I was very glad to get Dr. Cunningham's additional bilateral cases. Of course the question of sterility is certainly important. It is interesting to note that at the time Dr. Cunningham published his paper he had six bilateral cases, four of which were not sterile; now the number is up to eight cases, six of which are not sterile.

With regard to the method of closure, we have not had the slightest trouble with hematoma in any of our cases.

Book Reviews.

A Nursing Manual for Nurses and Nursing Orderlies. By DUNCAN C. L. FITZWILLIAMS, M.D., Ch.M., F.R.C.S. London: Henry Frowde, Hodder and Stoughton. 1914.

This volume in the series of Oxford medical publications is a very timely presentation of Red Cross methods and routine by a British surgeon, Captain of the first City of London field ambulance. The subject of first aid on the battlefield is fully dealt with and should prove of great value to any who are, or may hereafter be, engaged in such service in war. The book is so arranged that the consideration of the common diseases and injuries is associated with the anatomic and physiologic description of the regions and organs concerned. It is well illustrated with 106 text figures and forms an exceedingly convenient and practical pocket manual.

A Doctor's Viewpoint. By JOHN BESSNER HUBER, A.M., M.D. New York: Gazette Publishing Company. 1914.

This volume consists of a series of twenty-eight brief essays on medical and other topics, some of them reprinted from various medical and lay publications. They are in the author's familiar characteristic style, but can hardly lay claim to the literary merits of the greater medical essayists. Perhaps the comment and criticism on an antivivisection play are, at the present, the most timely and satisfactory items in this collection of miscellanea.

Obstetrical Nursing. By CHARLES SUMNER BACON, Ph.B., M.D. Philadelphia and New York: Lea and Febiger. 1915.

This volume in the Nurses' Text-book Series is somewhat ambiguously termed in its subtitle, "A Manual for Nurses and Students and Practitioners of Medicine." Like many books of its type, it attempts too much and between two aims fails in its fullest accomplishment. It is true that the physician should be familiar with the details of obstetric nursing, but it is better that he should acquire this knowledge from a text-book purely of nursing than that unnecessary details of medical knowledge should be incorporated in a nurse's text-book. Barring this criticism, the book is, in general, highly to be commended. It is clearly and effectively written and well illustrated with 123 engravings. If pruned of unnecessary medical items it should make an exceedingly useful manual for obstetric nursing.

Infantile Paralysis in Massachusetts, 1907-1912. Boston: Wright and Potter. 1914.

This belated report consists of a series of nine articles, some of them reprinted from other publications, dealing with the occurrence of epidemic poliomyelitis in Massachusetts during the quinquennium from 1907 to 1912, together with reports of special investigations in 1913 bearing on the etiology of the disease and the method of its transmission. A third of the volume is occupied by Dr. Sever's review of the recent literature of the disease with a selected bibliography of 141 titles. The volume also contains the work of Rosenau and others on the transmission of poliomyelitis by *stomoxys calictrants*; and the work of Lucas and Osgood on its transmission by virus from the nasal secretion. The volume is illustrated with a series of maps showing the distribution of the disease in Massachusetts in each year covered by the report and by another map showing the house distribution of the Springfield epidemic of 1912. The volume forms a valuable monographic record and history of poliomyelitis in Massachusetts during the period covered.

Medical Nursing. By A. S. WOODWARD, M.D., B.S. (Lond.), M.R.C.P. (Lond.). New York: Longmans Green and Company, London, Edward Arnold 1914.

This brief British text-book of nursing deals conveniently with general nursing procedures and with the special diseases grouped according to the visceral systems or regions involved. There are excellent chapters on massage and invalid cookery and an appendix on first aid treatment of emergencies. The book is illustrated with 68 text cuts and should prove a useful manual for nurses in both hospital and private work.

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JUDGE BAKER AND THE JUVENILE COURT.

THE sudden and early death of Judge Harvey C. Baker of the Juvenile Court has brought to public attention a life and an institution that have meant a great deal to this community. To the medical profession the event has special significance, for the work of the Juvenile Court has had much more in common with medicine than with the law, and it is probable that Judge Baker was more frequently in consultation with doctors than with lawyers in regard to his protégés. He saw in the crimes for which the children were brought before him, merely the expression of a diseased condition of the mind, which it was his duty to diagnose and, if possible, to trace out and remove the cause. His courtroom was like a physician's private office, and the children came to him just as a sick or injured child might come to a physician. Respect and kindness were the chief characteristics of

his manner with children, and they responded by showing their respect for him and giving him their confidence. Talking with the children themselves he could often trace out the causes which had led to their wrong-doing, for example, the influence of bad companionship, and by methods similar to those used by physicians in the treatment of morbid mental states, he was able to strengthen their resistance to temptations and to put them on their guard against influences which had resulted in their wrong-doing. The effects of these talks were reinforced by subsequent interviews with the judge and by an efficient follow-up system by probation officers, who worked with the same spirit as their chief.

The question was constantly presenting itself before the court: is the child's wrong-doing merely the result of its environment, or is it an expression of feeble-mindedness. The feeble-minded child is often attractive in appearance, and the condition can only be detected by tests carried out by those with special training. Judge Baker attached great importance to the medical examination of many of the children who were brought to him. A number of prominent neurologists assisted him in this work, and the Psychopathic Hospital, since its establishment, has been a great help. Judge Baker was especially interested in this phase of the work and was one of the founders and president of the Massachusetts Society of Mental Hygiene. He frequently called attention to the waste of effort and the great danger to the community in trying to help the feeble-minded child by the same methods that are used for the child of normal mental development. The feeble-minded child should be in a suitable institution for his own protection, for the protection of society, and to prevent his transmitting his weakness to offspring. The feeble-minded with criminal tendencies are an especial menace to the community. The Juvenile Court, by the early detection of cases of this class, saves society from their lowering and degrading influence, and does real preventive medical work of the highest type. We are just beginning to realize that with the problem of the feeble-minded is bound up the future of the human race.

It is perfectly evident to our profession what vital and fundamental work this is and how great is the need of its extension. The Juvenile Court has jurisdiction over only a small propor-

tion of the delinquent children of Boston—those living in the central district. In the other sections of the city and in the other cities of the Commonwealth there are the same problems and the same need for the sort of work Judge Baker was doing. The Boston Juvenile Court has thus been a sort of experiment station, on the success of which a great deal has depended. How great that success has been many have testified to since Judge Baker's death. To his co-workers and to those connected with the child-helping societies, his loss has seemed a staggering blow which threatens to check a movement of vital importance. The injury to this work would be incalculable should some one be appointed as judge who, instead of continuing the progressive methods of Judge Baker, should allow the court to revert to the ordinary type. Governor Walsh has a great responsibility in choosing a successor to Judge Baker, and in making his choice he should have the help of those who appreciate the importance of this work, among whom should be the medical profession and those connected with the child-helping societies.

While few have appreciated the features of the work to which we have referred, an unusually large number of our citizens have realized the unselfish devotion and public spirit which Judge Baker put into his work. They saw a life of extreme purity coming into the closest personal relation with children whose lives had always been darkened, shining upon them out of the warmth and kindliness of his heart, reaching out to them a helping hand and raising them up by the sheer strength and beauty of his own character. Those who can also see in Judge Baker a leader in a great movement for the benefit of unfortunate children which is to raise the moral standard of the whole race, have a picture of human service, the equal of which it is hard for us to conceive. The only possible memorial to such a life of service is the extension of the work to which he was devoted.

PROPOSED PROFESSORSHIP OF PSYCHIATRY.

IN the issue of the JOURNAL for April 15 we published an appeal made by Dr. William N. Bullard, Dr. Walter Channing and Dr. Herbert B. Howard for subscriptions to a fund

which they desire to raise for the establishment and endowment at the Harvard Medical School of a professorship of psychiatry or mental diseases. A further statement of the aims and purposes of this proposed endowment has recently been issued, pointing out the increasing menace of insanity to this country and the immense cost of its care to the community. It is believed by the proponents of this professorship that the remedy lies in the more thorough investigation of mental diseases with a view to their prevention.

"If insanity is to be prevented or cured, its causes must be understood and the earliest symptoms recognized. The physician is the one to do this, but hitherto he has known little or nothing of the subject. His education in this respect has been sadly deficient. This should no longer be the case and need not be, provided the medical student receive adequate instruction.

"To accomplish this object, there should be an endowed chair of mental diseases, or psychiatry, in the Harvard Medical School, filled by a professor who could devote his whole time to teaching and conducting clinics. Every student should be so well grounded in his knowledge of the causes and development of mental diseases that he could return to his own community a teacher himself and a leader in the investigation of the causes responsible for mental defect or breakdown. This connection between instruction and research is so intimate that the former may be said to be based upon the latter. Hence the research work in the Neuropathological Department forms the basis and foundation for instruction in insanity and mental disease, and its proper support is necessary in order that the instruction may be of the highest grade. When it is realized how far-reaching its results would be in the improvement of the health of the people and in the saving of money, it appears evident that no department of a medical school is more important than that of mental diseases, which eventually should become one of preventive medicine."

Massachusetts has already made an important beginning in the prophylaxis of mental disease by the establishment of the Psychopathic Hospital in Boston, which is already closely affiliated with the Harvard Medical School. It would seem that friends of the school could not better show their loyalty to it, their interest in medical research and their service to the community than by making possible the establishment at the school of such a professorship of psychiatry to complement from the didactic side, the work of psychopathic study and progress. Contributions to the fund for this proposed chair should be sent to Dr. Herbert B. Howard, in care of the Old Colony Trust Co., 17 Court St., Boston.

FLY SUPPRESSION.

THE important part played by insects in the transmission of many diseases is now well established, and, indeed, is rapidly assuming larger proportion, so that more and more diseases are embraced in their operations. On the other hand, there has been an unwholesome tendency to associate certain insects only with the transmission of certain diseases. This idea is a fallacy. An insect may carry many disease organisms and should not be credited with great selective powers. In this way it is that the common house fly has been misnamed the "typhoid fly," on the belief that it is solely concerned with the transmission of typhoid, although it is an agency in other intestinal conditions and in tuberculosis. The house fly is merely the mechanical carrier of the bacillus typhosus from infected material to food, or even more directly—from infected material to victim. The house fly does not act as a host in the sense that it retains the bacillus within itself to transfer to individuals with whom it comes in contact. To confound the house fly solely with typhoid fever is to give a false sense of security with respect to that insect. On the other hand, the large stable fly is yet distinctly associated with the spread of poliomyelitis, which disease it is believed to transmit to human beings through its bite. But this does not mean that it cannot carry other diseases mechanically, as does the house fly.

It can be seen that the suppression of the fly is a very important factor in the public health. Various agencies, realizing the potency for evil of this insect, have carried on fly suppression campaigns. But because of the prolificity and universality of distribution of the fly, no great progress can be made in its destruction or suppression. As everywhere, it is prevention before conception rather than suppression thereafter which gives the largest hope of success.

The logical time for prevention-suppression is not during the period of mature existence and activity—during the summer—but in the spring, before the fly has had time to breed and develop. During the winter only a few adult flies survive in cellars and barns. Flies are subject to a great many conditions which make their mortality very high. As soon as warm weather sets in, the survivors begin to lay their eggs in manure, piles, garbage or other organic refuse. And it is in these places that a thorough spring cleaning

would destroy the few adults and put them without the possibility of breeding.

It is to be remembered that it takes ten days for the development of the fly from egg to *imago*, and the mature fly, with its immense breeding possibilities, can at all times be anticipated by the removal and the destruction of all organic refuse at least once in ten days—the period of development. In the case of valuable organic matter, as, for example, manure, proper protection from fly contamination should be enforced. All organic refuse should be covered and protected in one way or another until final disposal. This method is the only sure one, the cheapest, and the one that requires the least amount of expenditure of energy. In view of the fact, however, that such protection is likely often not to be obtained, the employment of some simple form of trap may often be desirable in conjunction with other measures. In another column of this issue of the JOURNAL is presented a brief description of such a trap, approved by the United States Department of Agriculture. As, in the case of the prevention of typhoid fever neither protective inoculation nor the purification of water supplies should be solely relied upon, so, in the extermination of the fly, reliance should, at present, be placed on no one measure, but upon a judicious combination.



PROPOSED TRANSFER OF NEW YORK QUARANTINE.

ON April 20, a meeting was held at the New York Academy of Medicine for the discussion of the subject of transferring the quarantine service at the port of New York from local to federal control. The public health committee of the Academy of Medicine strongly approves the proposed transfer, and in accordance with its opinion, prepared the following series of resolutions, which were signed by a number of organizations and individuals in New York and elsewhere, and were adopted at the meeting in question.

Whereas, Maritime quarantine, like over-sea commerce, is not a matter of local but of national and international interest and importance; and

Whereas, The modern tendency in quarantine administration all over the world has been from local to national and international rules and regulations which insure uniformity of system and practice; and

Whereas, Quarantine work is essentially scientific in its nature, and cannot be carried on effi-

ciently unless the tenure of office be independent of changes in administration and of politics; and

Whereas, The United States Public Health Service, by its organization, the character, training and experience of its personnel and its opportunities for constant communication with all foreign ports, is admirably equipped to administer quarantine in a most efficient manner as attested by the satisfactory results obtained in San Francisco, New Orleans, Mobile, Manila, and the 50 or more other stations administered by the Service in the United States and its dependencies; and

Whereas, The history of local quarantine, including that of the port of New York, has shown that in times of crisis the local stations have been unable to cope with the situation without the assistance of the Federal Government; and

Whereas, There exists in Europe at the present time widespread quarantinable disease, which will become a source of grave danger to this country when immigration resumes its usual course at the termination of the war; and

Whereas, the opening of the Panama Canal will bring New York into direct shipping contact with South American and Asiatic countries, thus increasing the possibilities for the introduction of endemic tropical diseases; and

Whereas, Of all ports of this country, that of New York ranks first as a receiving station for foreign goods and immigration, as well as a distributing center for the entire country; and

Whereas, The federal government controls all the services incident to the administration of the port of New York, with the single exception of the quarantine, which is logically a part of the immigration service; and

Whereas, The United States as a party to international quarantine agreements, cannot guarantee their uniform observance unless all quarantine stations are under federal control; and

Whereas, The expenses for health protection, the benefits of which are shared by all parts of the nation, should not be borne by one city or state; and

Whereas, All the ports of this country, with the exception of Baltimore and New York, for the reasons above cited have already ceded their quarantine functions wholly or in part to the federal government;

Therefore, Be It Resolved, That the economical and efficient administration of the quarantine service, and above all, the safeguarding of public health, demand the transfer of the quarantine station of the port of New York from the state to the national government; and

Be It Further Resolved, That the governor of the state of New York be and hereby is respectfully and earnestly urged to take immediate steps to secure such transfer.

At the time recently when the same question was under consideration with reference to the quarantine service at the port of Boston the

JOURNAL advocated editorially the policy of placing such service in the hands of a uniform national administration. The same reasons which dictated this policy in Boston apply in New York with equal force; and in the interest of public health it is cordially to be hoped that the movement in New York for the transfer of the local quarantine may be successful, as it was in Boston.

EPIDEMIC OF STREPTOCOCCUS SORBI THROAT.

THERE has lately been prevalent in the Dorchester district of Boston and in the adjacent part of Milton, Mass., an epidemic of streptococcal tonsillitis, in some cases with metastatic complications similar to others which have prevailed a year or about this season during several years. On April 25 two hundred and ten cases had been reported in Dorchester and thirty-six in Milton. As on previous occasions, it has been strongly suggested that the disease has been disseminated through an infected milk supply; but at a season of prevalent cold and dusty winds the likelihood of air dissemination is, perhaps, equally possible. As a matter of fact, no decision has yet been reached, and conclusions should not be made until the forthcoming of the official report of investigation by a responsible board of health.

MEDICAL NOTES.

TWENTIETH ANNIVERSARY OF THE DISCOVERY OF THE X-RAY.—A meeting commemorative of the twentieth anniversary of the discovery of the x-ray was held at the New York Academy of Medicine, Hoosack Hall, on May 5, 1915, by the Roentgen Ray Association of Greater New York. The following addresses were delivered: "The Influence of Roentgen's Discovery on Physic Science," by Prof. Bergen Davis of Columbia University; "Roentgen's Discovery, Its Recent Developments and Future Possibilities," by William D. Coolidge, Ph.D., of Schenectady, N. Y.; "Historical Review of the Development of the X-ray Tube" (illustrated by lantern slides); by H. Clyde Snook, Ph.D., of Philadelphia, Pa.; "The Physical Characteristics of Roentgen Radiation with Reference to the Questions Involved in Treatment," by Professor J. S. Shearer of Cornell University; "The Inf

of Roentgen's Discovery on Medicine," by Ludwig Kast, M.D., of New York; "The History and Development of the Art of Roentgen Ray Diagnosis," by Percy Brown, M.D., of Boston.

ASSOCIATED OUT-PATIENT CLINICS OF NEW YORK.—The second annual report of the Associated Out-Patient Clinics of the City of New York is an interesting record of this attempt on the part of the dispensaries and out-patient departments of the hospitals of New York and Brooklyn to improve the character of the work done at those institutions by the formation of a society whose aims are stated as being: first, the coordination of the work of existing dispensaries and out-patient clinics; second, the elimination of unworthy applicants for treatment; third, the promotion of proper standards of treatment; fourth, the promotion of economy and efficiency in dispensary management. Forty hospitals and dispensaries in New York City are members of the association and twelve more hospitals belong to the Brooklyn chapter. Various committees report on the desirability of the establishment of whooping cough clinics, evening eye clinics, methods of dispensary accounting, uniform dispensary records, the statistical reports of dispensaries, occupational diseases and dispensary fees. Later results of the work of this association will, no doubt, prove the efficiency of these methods of coöperation on the part of the leading hospitals of a large city, in a department of its work which covers so extensive a field.

EXCEPTIONALLY LOW TYPHOID RECORD IN NEW YORK.—For the first time in very many years not a death was reported from typhoid fever last week. The only other week in the history of the department which was free from a mortality from this cause was the week of April 1, 1909. The number of deaths from this cause the week of April 25, 1914, was 6. This was the most noteworthy incident of the week's mortality. It is also worthy of note that there was not a death reported during the past week in the borough of Manhattan from homicide.

The wave of epidemic influenza which reached its culmination during the week ending April 12 is gradually receding, as shown by the mortality figures for the past week, during which there were 1748 deaths and a death rate of 15.71 per one thousand of the population reported as compared with 1637 deaths and a rate of 15.30 for the corresponding week of 1914, a decrease in the absolute figures of 111 deaths and in the relative figures of 63 deaths.

There were 28 deaths reported from influenza compared with 13 for the corresponding week of 1914, 200 deaths from lobar pneumonia as compared with 122, 228 deaths from pulmonary tuberculosis as compared with 186, 348 deaths from combined heart and kidney diseases compared with 335.

The mortality from measles, diphtheria and croup, and whooping cough, was considerably greater than in the corresponding week of last year.

The mortality of infants under one year was slightly below, while that between one and five years was somewhat in excess of, last year's figures. Between the age of 5 and 65, the mortality was considerably increased, as was the mortality at ages 65 years and over.

The death rate for the first 17 weeks of 1915 was 14.72 per one thousand of the population as against a rate of 15.46 during the corresponding period of 1914.

A study has just been completed to show the effect of the European war on the population of this city. Diminished immigration caused a decrease in the rate of growth ordinarily expected. This necessitated a revision of last year's mortality figures, from 13.40 deaths per one thousand as originally calculated to 13.48.

VITAL STATISTICS OF LONDON IN 1914.—Statistics recently published show that during the year the total birth rate of the city of London was 24.3 and the death rate 14.4. Among the several districts and boroughs the highest birth rate and death rate (32.1 and 19.6 respectively) were both in Shoreditch, a crowded east end slum. The lowest birth rate, 10.2, was naturally in the business district of London. The next lowest birth rate was 14, in the city of Westminster, a fashionable residential district. The lowest death rate was 10.7 in Lewisham, an eastern suburb along the Thames. The infant death rate under one year of age was also highest, 141 per thousand births, in Shoreditch, and lowest, 67, in Chelsea, a western suburb along the Thames. The total infant mortality of London was 104 per thousand births. Of the important infectious diseases phthisis caused 6810 deaths, infantile enteritis 3021, and measles 1,385. There were no deaths from smallpox in London during the year.

AMERICAN RED CROSS SENDS PHYSICIAN TO PAIGNTON, ENGLAND.—Dr. Herbert H. Howard, Harvard Medical School, 1912, has been appointed by the American Red Cross, to the position of staff physician in the American Women's War Relief Hospital at Paignton, South Devon, England. Dr. Howard sailed on the steamship *New York* May 1.

PREVENTION OF SMALLPOX AT MEXICO CITY.—It is reported that, to combat the spread of smallpox in Mexico City, a supply of vaccine was ordered from New York and was due to reach Vera Cruz on April 26, whence it would proceed by train to Mexico City. The State Department at Washington states that there is no epidemic of smallpox in Mexico City. There were apparently several cases there and these measures were taken to prevent the further spread of the disease.

DINNER OF HARVARD CLUB OF PARIS.—The Harvard Club of Paris held, on April 21, a dinner at which James Hazen Hyde presided. Members of the French Academy, of the Harvard faculty and representatives of the foreign office and of the Sorbonne were present.

Among those who spoke were United States Ambassador Sharp, Lucien Poincaré, brother of the French President; Emile Boutroux, professor of philosophy at the University of Paris; Eugene Brieux, the playwright; Dr. Harvey Cushing of the Harvard Medical School and Prof. Edwin H. Hall, professor of physics at Harvard.

NEW BUILDINGS AT WASHINGTON UNIVERSITY MEDICAL SCHOOL.—Washington University Medical School dedicated its new buildings on April 29 and 30. Addresses were delivered by Dr. Eugene L. Opie, dean of the medical school; Dr. William H. Welch, of Johns Hopkins University; President A. Lawrence Lowell, of Harvard University; Dr. William C. Gorgas, surgeon general, United States army; Dr. William T. Porter, Dr. R. J. Perry, Dr. George Dock, Dr. Abraham Flexner and President Henry S. Pritchett, of the Carnegie Foundation for the Advancement of Teaching.

TYPHUS SUSPECTED AT THE PORT OF NEW YORK.—A Greek steamer, the *Themistocles*, sailing from Piraeus, was held in quarantine on its arrival at New York and eighty-six passengers, suspected of having typhus were removed to Hoffman Island for treatment. There were 667 passengers on the steamer all of whom were subjected to a rigorous physical examination, and those showing evidence of infection were removed.

AMERICAN UNIT ON WAY TO SERBIA REACHES ITALY.—The unit of the American Red Cross detailed for work in Serbia, under the leadership of Dr. Richard P. Strong of Harvard Medical School, arrived at Brindisi, Italy, on April 21 and from there left for Saloniki, Greece, to route to Serbia.

Report from Nish states that Dr. Strong arrived in that city on April 24.

THE MAYO FOUNDATION FOR MEDICAL RESEARCH.—In the JOURNAL of February 18, 1915 (Vol. clxxi, No. 71, p. 271) mention was made of the \$1,000,000. endowment fund given by the Drs. Mayo of Rochester, Minn., for the establishment of a foundation for medical research to be under the control of the University of Michigan. The Minnesota Senate has passed a bill prohibiting this affiliation. It is to be hoped that satisfactory arrangements may be made so that the great benefit to accrue from such a foundation may not be lost.

AWARD OF THE GROSS PRIZE.—It is announced

that the Philadelphia Academy of Medicine has awarded the Samuel B. Gross Prize of \$1,500 for the year 1915 to Dr. John Lawrence Yates of Milwaukee, for his essay entitled "Surgery in the Treatment of Hodgkin's Disease."

ARREST OF MEDICAL IMPOSTERS.—Report from New York states that 43 medical imposters have been arrested. They were proprietors of so called free museums and those without licenses were charged with fraudulently practicing medicine. Those who were licensed were charged with prostituting their profession. It is believed that a chain of such medical offices connected with free museums are operated in Pittsburgh, Newark, Baltimore and a number of other cities.

EUROPEAN WAR NOTES.—Report from Mitylene says that in Erzerum, Armenia, and its surrounding district, there are one thousand deaths daily from smallpox and typhus which are extensively prevalent in that district, and in Trebizond.

It is reported that Sir William Osler of Oxford has proposed that the Harvard Medical School should send abroad in June for service at an English Government field hospital, either in France or in England, a second unit, to consist of twenty-four surgeons and to have charge of over one thousand beds. It is understood that this proposition is under serious consideration at the medical school. The first Harvard unit is now serving at the American Ambulance Hospital at Neuilly, France.

EUROPEAN WAR RELIEF FUNDS.—On May 1 the totals of the principal American relief funds for the European War reached the following amounts:—

	N. Y.	N. E.
Belgian Fund	\$1,028,924.80	\$254,466.40
Jewish Fund	652,983.56	60,448.61
Red Cross Fund	490,315.91	131,683.37
American Ambulance	386,417.80	
American Women's Hosp.	250,000.00	
Committee of Mercy.....	150,817.16	
Prince of Wales	119,011.08	
Polish Fund	52,115.25	44,712.39
Serbian Fund	48,263.25	15,815.25
Persian Fund	26,149.71	
Belgian Red Cross		10,890.00

NATIONAL CONFERENCE OF CHARITIES AND CORRECTIONS.—The preliminary program has been announced for the forty-second annual meeting of the National Conference of Charities and Corrections, which is to be held at Baltimore Md., from May 12 to 19. The program contains the names of over fifty physicians, charitable workers and penologists, and it is believed that contemporary conditions associated with the European War will contribute to make the meeting one of unusual interest and importance. A recently issued bulletin of the Massachusetts State Department of Health contains the following statement of the medical program.

"The field of health and hygiene is compre

ended in a series of discussions on health topics, under the chairmanship of Dr. Richard C. Cabot of Boston, and of social hygiene, under the chairmanship of Mrs. Martha P. Falconer, superintendent of the State School for Girls at Darling. Dr. Cabot's program will include an explanation of the newer methods of hospitals in their social service departments, the chief speaker being Dr. William H. Welch of Johns Hopkins Hospital, Baltimore, and a symposium on the social education of the physician, by Mr. Joseph Lee of Boston and Dr. Charles P. Emerson, dean of the medical department of Indiana University, Indianapolis. Mrs. Falconer's program will be addressed to the question, "How shall We Suppress Prostitution?" this following previous considerations at the National Conference of the extent of our scientific knowledge of this subject and the proper use of popular educational methods. Dr. Katherine Bement Davis, Commissioner of Correction of New York City, will give "A Survey of Educational Work," and other speakers will treat subjects such as protective league work, prostitution in rural communities, and methods of scientific investigation.

"The discussion of state care of the insane, feeble-minded and epileptic will occur under the chairmanship of Dr. Walter E. Fernald, superintendent of the Massachusetts School for Feeble-Minded at Waverley. It will include answers to the question, "What is Practicable in the Way of Prevention of Mental Defect and Disease?" and a discussion of "Available Fields for Research and Prevention in Mental Defect." The speakers in this section include Dr. Adolf Meyer of Baltimore, Dr. C. B. Davenport, Cold Spring Harbor, N. Y., Dr. H. H. Goddard of Meland, N. J., Dr. Martin W. Barr, superintendent of the Pennsylvania School for Feeble-Minded at Elwyn, and Dr. Walter S. Cornell of Philadelphia."

BOSTON AND NEW ENGLAND.

ANNUAL MEETING OF THE MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY.—At the annual meeting of the Middlesex South District Medical Society, held at the American House on April 2, the following officers were elected: Dr. William D. Swan of Cambridge, formerly vice-president, became president; vice-president, Dr. George T. Tuttle, Waverley; secretary, Dr. Lyman S. Hapgood, Cambridge (re-elected); treasurer, Dr. Charles A. Dennett, Arlington (re-elected); commissioner of trials, Dr. Lewis M. Palmer, Cambridge; and orator, Dr. Charles F. Painter, Newton. The new auditors are Dr. Nat. T. Shannon, Cambridge; Dr. Lincoln F. Sise, Medford; and Dr. Frederick G. Smith, Somerville. Dr. William C. Hanson of Belmont delivered the annual oration on the subject of "Scope of Public Health Service." Over one hundred members were present.

CASE OF RELAPSING FEVER IN BOSTON.—On April 23 a case of relapsing fever was discovered in an Armenian immigrant at the Boston detention station, where he had been retained since his arrival aboard the *Canopic* from Italy six weeks ago. The patient had been transferred to quarantine and the detention station is to be fumigated. Another case of this unusual disease was reported in Boston in 1909, and the only other one apparently recorded in this country occurred in 1872.

MEMORIAL TO DR. W. D. KELLY.—At the time of the death of Dr. W. D. Kelly of Boston, his numerous friends among the school children of the West End raised a sum of money to buy flowers for his funeral. A surplus of \$51.50 was given to the Milk and Baby Hygiene Association, in which he was much interested, as a memorial to Dr. Kelly.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending April 27, 1915: Diphtheria, 75, of which 5 were non-resident; scarlatina, 112, of which 14 were non-resident; typhoid fever, 2; measles, 219, of which 5 were non-resident; tuberculosis, 63, of which 6 were non-resident. The death-rate of the reported deaths for the week was 18.85.

Massachusetts Medical Society

EXCURSIONS TO THE ANNUAL MEETING OF THE AMERICAN MEDICAL ASSOCIATION IN SAN FRANCISCO, JUNE 21 TO 25, 1915.

FELLOWS of the Massachusetts Medical Society have been invited by the Chicago Medical Society to join a special train party for San Francisco leaving Chicago, June 17, and arriving in San Francisco, June 21. The tour will be conducted by the Gregory Tours, 1103-4 Lytton Building, Chicago, and the rate from Boston and return, including all necessary expenses, hotel accommodations in San Francisco, will be \$188.20. To secure accommodations and for further information it is necessary to communicate with Dr. R. R. Ferguson, 3923 North Keeler Avenue, Chicago, Ill., as soon as possible.

Some of the fellows have signified their intention of making the trip to San Francisco by the McCann's Tour, which leaves Boston June 16 and arrives in San Francisco June 20. The expense of this trip is \$285, from New York and return on July 8, including two days in the Glacier National Park and a day at the Mayos' Clinic on the return journey. Information about this trip may be obtained from McCann's Tours, 1328 Broadway, New York City.

Miscellany.

PREGNANCY CLINICS.

THE following statement with regard to pregnancy clinics in Boston has been submitted by Dr. Arthur B. Emmons, whose article on "The Care of Prospective Mothers," was published in last week's issue of the JOURNAL:—

"Prenatal care is become prominent in the lay as well as in the medical press. The following statement as to the value and desirability of such care and the policy of carrying on prenatal clinics, approved by a representative advisory medical committee, may be of interest to the medical public as a new line of public health education. The Committee on Public Health of the Women's Municipal League of Boston, Mrs. William Lowell Putnam, chairman, has organized a sub-committee on Prenatal and Obstetric Care, composed of representatives of the Boston Dispensary, M. J. Davis, Jr., director; The Instructive District Nursing Association, Mrs. E. A. Codman president and Miss Mary Beard, director; Miss Strong of the South End House, and A. B. Emmons, 2d, M.D., physician-in-chief of the Maverick Dispensary. This committee recognize that such work is primarily medical and has, therefore, obtained the counsel of a medical advisory committee, whose statement follows:—

COMMITTEE ON PRENATAL AND OBSTETRIC CARE. STATEMENT OF THE MEDICAL ADVISORY COMMITTEE.

In spite of agencies which provide obstetric care for the poor there are today many women of limited means who do not receive reasonable, safe prenatal care, and no existing agency has provided for many of these women.

The preliminary examination and continued supervision of the prospective mother is recognized today to be a part of adequate obstetric care. This care is proved to be of value as a safeguard to the mother, an aid to maternal nursing, and a large factor in the prevention of infant mortality.

Prenatal and obstetric clinics are considered a means of meeting this need. The Committee on Prenatal and Obstetric Care of the Women's Municipal League of Boston has under its control three such clinics, and is ready to develop others whenever the need is shown. The work of this committee does not duplicate the work of other medical agencies, nor does it interfere with the doctors in the vicinity.

GENERAL PURPOSES.

1. To offer prenatal care, *i.e.* the early examination and supervision of prospective mothers of limited means.

2. To coöperate with private physicians, or, where, necessary, to provide experienced ob-

stetric service to insure prenatal and post-natal nursing care.

3. To teach prospective mothers general hygiene and the importance of medical supervision during pregnancy, and of adequate care at confinement.

A preliminary medical and obstetrical examination made as early in pregnancy as possible is valuable in forestalling dangers, in preventing accident, and in providing intelligently for the pregnancy, the confinement, and the care of the baby.

The nursing service should include the presence of a nurse at the clinic during the preliminary examination, visits in the home at intervals sufficiently frequent to prevent unforeseen complications, and as frequently as required in cases presenting abnormal symptoms, also the usual nursing during the puerperium.

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CLASSES OF PATIENTS TO BE RECEIVED.

This service is designed to reach all those of limited means, to whom the usual fees for an equally efficient service would be reasonably considered a hardship.

FEEES.

The preliminary examination at the clinic and the supervision of pregnancy by the committee's obstetrician is paid for by the Women's Municipal League in order to develop the work as a measure of public health. No charge is made, therefore, to the patients for this service. A fee of \$10.00 is charged for the obstetrical care at confinement. The nursing fees are the usual ones of the Instructive District Nursing Association which provides the entire nursing service.

RELATIONS TO LOCAL PHYSICIANS.

Any physician may refer to our clinics a patient for prenatal care only, if he so desires, and such patients will be given examination and nursing supervision during pregnancy, and will be returned for obstetrical care to the physician who referred them, with information of conditions found. Doctors in the neighborhood of any one of our clinics are also invited to refer to us patients who are unable to offer the usual fee for adequate obstetric care. Persons who apply at the clinic, but who are found to have a family doctor to whom they are able to pay the usual fee, will be referred back to their physician. Physicians will always be welcomed at the clinics.

(Signed)

EDWARD REYNOLDS, M.D.,
F. S. NEWELL, M.D.,
R. L. DENORMANDIE, M.D.,
L. V. FRIEDMAN, M.D.,
JAMES LINCOLN HUNTINGTON, M.D.,
WILLIAM J. GALLIVAN, M.D.,
HENRY I. BOWDITCH, M.D.,
E. P. RUGGLES, M.D.,

Medical Advisory Committee."

A SIMPLE TRAP FOR THE HOUSE FLY.

IN another column of this issue of the JOURNAL we have commented editorially on the importance of fly suppression and have referred to a description of a simple trap for the house fly, approved by the United States Department of Agriculture and described in its recent bulletin (No. 200). The experiments upon which the invention of this trap was based, were conducted at the Maryland Agricultural College during August and September, 1914, and it is claimed that by its means at least 98% of breeding fly larvae are destroyed.

"The principle of the trap is simple, it is easy to construct, and the expense is said to be probably less in the long run than the investment which many farmers now make in screens for their dwellings, and sprays and fly-nets for their live stock. In its roughest outlines the trap consists of a concrete basin with a latticed wooden platform erected upon it to hold the manure. The basin is connected by a drain pipe with a small concrete cistern. The bottom of the basin is filled with water, into which the maggots breeding in the manure drop, as they are about to turn in the pupa or ehrysalis stage, and are drowned. At frequent intervals the water is run off into the cistern and is then pumped back on the manure pile. In this way all the liquid manure is saved.

"The successful operation of this trap rests upon several facts connected with the habits of the house fly which have been thoroughly established by observation. The adult fly lays its eggs in fresh manure. There they remain until the larva stage is almost over and the insects are about to enter the pupa or ehrysalis stage. At this time a pronounced tendency to migrate is evident. In consequence, if the manure is placed upon a platform with a latticework bottom, the larvae, while migrating, will fall through these openings into the water in the basin below. In the case of the experiments at the Maryland Agricultural College a careful count showed that between July 25 and Oct. 1 about 112,000 larvae were killed in this way. This, however, does not include the number that were picked up from the basin by sparrows or poultry. Altogether it is estimated that during the warm weather the efficiency of the trap was probably 99%. Later, when the temperature was lower, the trap's success was not so marked. This was accounted for by the fact that when the air is much colder than the manure heap the larvae will not attempt to leave the heap and therefore will not fall into the basin.

"Another difficulty experienced arose from mosquitoes using the water in the basin and the cistern to breed in. This was overcome by cleaning out the basin at regular intervals and by sprinkling a little oil over the surface of the water in the cistern.

"Properly constructed, such a trap offers no obstacles to the convenient and economical

handling of manure. It is essential, however, that each day's addition to the heap should be sprinkled with sufficient water to keep the manure moist but not enough to cause leaching. The details of the construction of the trap are contained in the bulletin already mentioned. This particular trap was designed to hold the manure produced by three horses for three months, but there is no reason why larger quantities should not be treated in the same way, by building larger traps or by building several of smaller size."

Correspondence

THE AMERICAN WOMEN'S WAR HOSPITAL.

(From Our Special Correspondent.)

30 FINSBURY PARK ROAD,

LONDON, N., April 13, 1915.

Mr. Editor: The most interesting hospital which I have visited in England is The American Women's War Hospital at Paignton. It is over a month since my visit and I went there as a guest, not a reporter.

Paignton is a winter resort in Devon on the southern sea coast. Mr. Singer's estate on the outskirts has been transformed into a hospital. It is a beautiful place surrounded by well-kept grounds and overlooking the sea. A remarkable tropical garden filled with palms, century plants and other delicate vegetation bears testimony to a mild health-giving climate.

In the Singer home itself are several wards, an excellent operating room and quarters for the fifty odd nurses. As the house is rather extravagantly furnished, a group of "Tommyes" in blue flannel suits and bed slippers made a rather strange picture as they knitted or played cards in the stately drawing room. When one man, fresh from the trenches, was being carried in for the first time, he looked at the statues about him and up a flight of marble stairs to a huge painting of the Marriage of Napoleon and ejaculated, "My word, is this Windsor Castle?"

An arena planned for indoor-riding has been transformed into an excellent, large ward. After the other lights are out the rays of two dark lanterns illuminate a large British flag high above the beds. Several other outhouses are used as wards and a building which covered a swimming pool is being prepared in anticipation of a greater influx of wounded with the coming of warm weather.

The colony of eight American doctors is very pleasantly housed. A stranger is immediately made to feel the atmosphere of American friendliness and good cheer. Their only complaint seemed to be that the cases received were not severe nor varied enough. A surprisingly large number of them were cases of frost-bitten feet. The nurses are mostly Americans, but there are a number of English and some Australians. A little English probationer told me that she had tried a number of English hospitals but found they needed no one, so she felt very fortunate to have been taken in here.

The soldiers seemed quite grateful for the care they were receiving. A Scotchman was weaving crossed American and English flags from colored yarn, and I found out later that it was a pair of bed slippers intended for his nurse.

The wounds of some of the men who had lain in hospitals in France for some time showed the usual results of neglect. One easily gets the impression that the Tommyes are longing to return to their regiments. I heard one of them express what appeared to be his true feeling on this subject. A kindly, old lady asked him if he was anxious to get back to fight for his king and country. He looked at her a

moment and then said, "If you was out of hell on leave would you be anxious to get back again?" The speaker was a boy of 19 who had lain between the trenches, wounded, for three days.

Before leaving Paignton I had the good fortune of seeing a trainload of wounded arrive. The townspeople were outside the station with motors and wagons of all descriptions. Boy scouts and men in firemen's uniform were waiting to help with the unloading. The train came in with about 70 wounded. In a surprisingly short time they were carried out to the line of waiting vehicles and borne, through a crowd of villagers who occasionally broke into cheers, to the hospital on the hill.

I have been informed that the patients are taken from the base hospitals in France or direct from the firing line, carried over the channel in hospital ships and loaded onto trains waiting at the dock. All other traffic is held up to let these trains go through to hospitals in various parts of England and Scotland. Two days after the battle of Neuve Chapelle many of the wounded were resting in hospital wards on this side of the channel.

The trains mentioned above have all been fitted up since last August. The cars present quite a finished appearance, however. They originally carried milk. Now each one is painted white inside and a line of upper and lower bunks, swung from each wall, somewhat after the plan of an American Pullman sleeper. Straps are suspended over each bunk so that the patient may help when being moved about. As each man is removed his bed is folded up against the wall. In one car is a small operating room which appeared quite well equipped for use in case of emergency. The doctor in charge, together with his corps of assistants and orderlies, lives on his train during its trips back and forth. Sincerely yours,

WILDER G. PENFIELD.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING APRIL 24, 1915.

CONTRIBUTIONS.

Dr. George W. Crile, Cleveland, Ohio.....	\$100.00
Salt Lake County Medical Society, Salt Lake City, Utah (third contribution).....	21.00
Dr. C. P. Thomas, Los Angeles, Cal.....	5.00
Portland Medical Club, Portland, Me.....	25.00
Dr. C. H. Henninger, Pittsburg, Pa.....	5.00
Dr. J. J. Buchanan, Pittsburg, Pa.....	25.00

Receipts for the week ending April 24th.....\$ 181.00
Previously reported receipts..... 6324.50

Total receipts.....\$6505.50
Disbursements for the week ending April 24:
80 standard boxes of food @ \$2.30..\$ 184.00
Previously reported disbursements:
1625 standard boxes of food @ \$2.20..\$3575.00
1194 standard boxes of food @ \$2.30.. 2746.20

Total disbursements.....\$6505.02

Balance \$0.50

Through an error in the report of April 17, the contribution of the Bennington County Medical Society, Bennington, Vt., was credited to the Secretary, Dr. Lucretius H. Ross.

F. F. SIMPSON, M.D., *Treasurer*,
7048 Jenkins Arcade Bldg.,
Pittsburg, Pa.

CENSORS' EXAMINATION.

The Censors of the Suffolk District Medical Society will meet to examine candidates for admission to The

Massachusetts Medical Society at 8 The Fenway, on Thursday, May 13, 1915, at 2 P.M.

Candidates, who must be residents of the Suffolk District, or non-residents of Massachusetts, should make personal application to the Secretary, and present their medical diplomas, at least three days before the examination.

For further particulars, apply between 2 and 3 P.M.

WALTER C. HOWE, M.D., *Secretary*,
303 Beacon Street

SOCIETY NOTICES.

THE AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION. The eighteenth annual meeting of the American Gastro-Enterological Association will be held in Osler Hall, Medical and Chirurgical Building, Johns Hopkins University, Baltimore, Md., on May 10, 1915.

Physicians are cordially invited.

FRANKLIN W. WHITE, M.D., Boston,
Secretary.

NORFOLK SOUTH DISTRICT MEDICAL SOCIETY.—Annual meeting, United States Hotel, Boston, Thursday evening, May 6, 1915.

Business meeting at 6 P.M., followed by banquet and annual address by the president.

F. H. MERRIAM, M.D., *Secretary*,
South Braintree, Mass.

NORFOLK DISTRICT MEDICAL SOCIETY.—The sixty-fifth annual meeting of the Norfolk District Medical Society will be held at the New American House, Hanover Street, Boston, at 5.30 P.M., on May 11, 1915. The annual dinner will be served at 6.30 P.M.

The treasurer will be at the meeting ready to receive the annual assessment of \$5.00. All members are urgently requested to pay at that time, or to forward the amount to him, instead of making payments at the meeting of The Massachusetts Medical Society in June.

G. H. FRANCIS, M.D., *President*,
BRADFORD KENT, M.D., *Secretary*.

APPOINTMENTS.

Dr. Thomas M. Gallagher of Newton, associate medical examiner of the seventh Middlesex country district, has been appointed surgeon to out-patient department at St. Elizabeth's Hospital.

Dr. Douglas Stanley has been appointed professor of therapeutics at the University of Birmingham, England.

RECENT DEATHS.

DR. GEORG JOCHMANN of Berlin has died recently of typhus fever contracted in one of the Russian prison camps.

DR. ARTHUR ERNEST GALE, who died on April 27 at Chestnut Hill, Mass., was born in Haverhill, Mass., in 1869. He obtained his preliminary education at the Phillips Exeter Academy and after studying for a year in Harvard College, entered the University of Chicago, from which he received his doctorate in medicine. After practising his profession in Chicago for several years he retired from medicine and returning to Massachusetts engaged in business for the remainder of his life. He is survived by his widow and by one son.

DR. DANIEL JOSEPH MEHEGAN, a Fellow of The Massachusetts Medical Society, died of diabetes mellitus at his home in Taunton, Mass., on April 2, aged 46 years. He was a graduate of the Taunton High School, and of the Harvard Medical School in 1894. He had practised in Taunton since that time. He leaves a widow and four children. At the time of his death Dr. Mehegan was one of the Censors of the Bristol North District.

The Boston Medical and Surgical Journal

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Address.

THE CARE AND TREATMENT OF THE WOUNDED IN THE EUROPEAN WAR.*†

By RICHARD DERBY, M.D., NEW YORK.

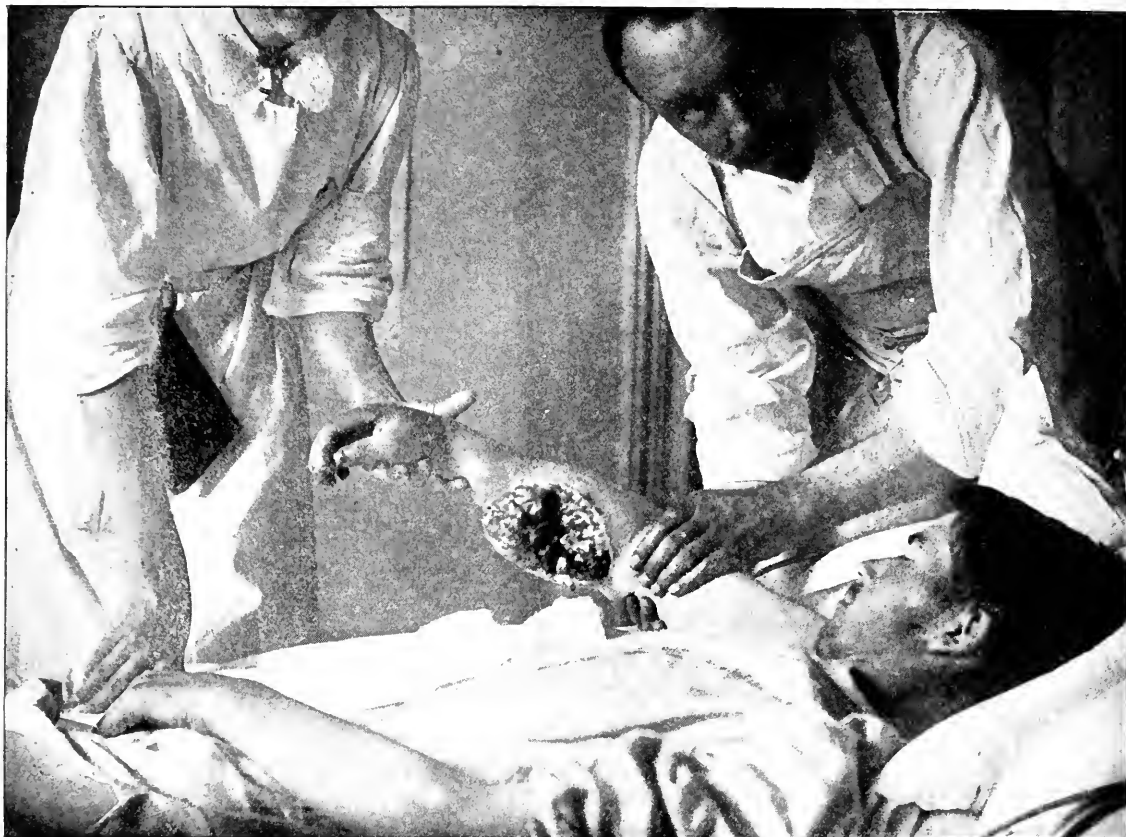
At the outbreak of the present European War, some of the Americans resident in Paris conceived the idea of establishing a Section for the Wounded, as an outgrowth of the American Hospital in Paris. The Lycée Pasteur, a large public school building nearing completion, was offered them for this purpose by the French Government. Prompt and efficient organization converted this building, in the short period of three weeks, into a modern and well equipped hospital, capable of caring for upwards of a hundred patients. With the nursing staff of the American Hospital as a nucleus, an efficient nursing department was organized by the addition of American and English volunteer nurses and resident American ladies in Paris. Many of the American business men of Paris volunteered as orderlies, ambulance drivers, and stretcher bearers. The doctors in attendance at the American Hospital, under the leadership of Dr. DuBouchet and Dr. Blake, took over the wards. The manager and his wife, of one of the large Paris hotels, volunteered their services to look after the cuisine. The actual administra-

tion of the hospital was in the hands of the surgeon-in-chief and a committee of the trustees of the American Hospital.

Early in September the hospital was ready for the reception of wounded. At that time, during the Battle of the Marne, no wounded were being sent to Paris. The city was in danger, under military rule, and the wounded were being sent to the south of France. One night, at the instigation of the Ambassador, a party of automobiles went out to Meaux, picked up from the battlefield and roadside all the wounded they could carry, and brought them into the hospital. Shortly after this, permission was given the ambulances of the hospital to remove wounded from the trains as they stopped at Auber Villiers and Ville Neuf St. George. Doctors always accompanied the ambulances to these stations, and saw to it that only the most serious cases were removed and brought to the hospital. The custom had been for an officer of the Santé to pass through the train at the stop near Paris, and ask if anyone complained and would like to be taken off. The question did not as a rule elicit an answer from the unconscious man with a fractured skull, while he with some trivial injury might avail himself of the invitation.

At the time of the Battle of the Marne the emergency and the number of the wounded was so great that the handling of them was a matter of the greatest difficulty. The French were then fighting a battle, the importance of which cannot be exaggerated. All the railroads and roads leading up to the line of battle, were primarily needed for bringing up reinforcements, ammunition and food. The moving back of the

* Read at a meeting of the Harvard Medical Society, Feb. 2, 1915.
† In another column of this issue of the JOURNAL is published a communication from Dr. R. B. Osgood which should be read in conjunction with Dr. Derby's article to obtain a complete picture of the history and present status of the American Ambulance Hospital.



Shrapnel Wound on Ventral Aspect of Forearm.

[By Courtesy of Dr. Samuel G. Underhill, of Lynn.]

wounded had to be relegated to fourth place, in order of importance. The trains going up, after unloading, were filled with wounded, and started on their return journeys. Economically, it was better for these trains to return to points in the south of France, from where they came, and not touch at Paris. The result was that the return journey was a long and constantly interrupted one. Long hours of waiting on sidings, while the supply trains passed north, turned the usual journey of part of a day into a week's length. In the early days of October, when I reached Paris, we received wounded at the hospital who had been a week in coming from points as near as Arras or Soissons. Military necessity was the explanation, and I know of no method, in face of the conditions, which could have brought the wounded more quickly to a base hospital at a safe distance.

During the early weeks of October, we received comparatively few wounded at the hospital, and this in face of the fact that spirited fighting was going on at this time. The French communiqués reported favorable progress. At first it was difficult to explain the discrepancy, but subsequent developments showed that during this period the Germans had been advancing, and had consequently been picking up the French wounded.

President Poincaré and General Gallieni, the

Military Governor of Paris, visited the hospital in the middle of October, and expressed their satisfaction and appreciation of the work being done there. There followed a promise from the French Government to send ten wounded a day to the hospital, which was strictly adhered to.

On my service of one hundred beds, there were 82 cases of shrapnel wounds, 20 cases of rifle bullet wounds, and one bayonet wound. The shrapnel wounds were, without a single exception, infected. Four of the twenty rifle bullet wounds were clean, but the infections of the remaining sixteen were milder in nature than in the case of the shrapnel wounds. It was not at all surprising to find the shrapnel wounds infected, considering the amount of foreign material found in them. It was often possible to identify the red and blue material of the French soldiers' uniforms. Pieces of straw and wood were occasionally found.

The following table shows the nature of the injuries and the parts of the body affected, in order of frequency:—

Fracture of the radius.....	1
Wound of the nose.....	1
Fracture of the ulna.....	2
Traumatic amputation of the thigh.....	2
Fracture of a metatarsal bone.....	3
Fracture of the skull.....	3
Fracture of the pelvis.....	3

Fracture of the scapula.....	4
Fracture of a rib.....	4
Fracture of the jaw.....	4
Fracture of a phalanx.....	4
Wound of the knee-joint.....	4
Fracture of a metacarpal bone.....	4
Injuries to the spinal cord.....	5
Injuries to the eye.....	5
Penetrating wounds of the abdomen.....	5
Penetrating wounds of the thorax.....	6
Fracture of the tibia.....	8
Fracture of the fibula.....	8
Fracture of the femur.....	9
Fracture of the humerus.....	20
Flesh wounds.....	35

The point of chief interest in this table is the comparatively small number (5) of penetrating wounds of the abdomen. These five cases, I think, very fairly represent the small proportion of recoveries from these wounds. The vast majority of these cases must die on the field of battle or in the trenches.

There were four cases of infection with the *Bacillus aerogenes capsulatus*, of which three recovered, an amputation at the thigh being necessary in one of the cases. A great many of the wounds contained gas on admission to the hospital. The *Bacillus coli communis*, or some other gas-forming organism, was most often responsible.

The usual procedure was to take all cases, upon admission, to the operating room and give them an anaesthetic. Then the part of the body affected was shaved, if necessary, and cleaned with turpentine, soap and water, and bichloride. In infected cases, the wounds of entry and exit were enlarged, and all gross foreign material and unattached fragments of bone removed. The wound was then irrigated with peroxide of hydrogen. Suitable drainage was established, and a sterile dressing and splints, when necessary, were applied. The subsequent treatment consisted in daily dressings and irrigation.

The majority of the patients we received in Paris were French. During September a good many English were sent to Paris, but during October and November they were sent to base hospitals along the coast, and from there shipped back to England. Before I left in December, some of the English wounded were again being sent to Paris. There were a few Turks and Senegalese. The German wounded brought to Paris were sent to military hospitals, where they could be confined as prisoners.

Upon their arrival at the hospital the wounded were much exhausted. It was not uncommon to see them sleep the greater part of the first forty-eight hours. They appreciated, as I have never seen any one before, the luxury of a comfortable bed with its clean sheets, a hot meal, and last but by no means least, the cigarette offered them by their next-door neighbor. After recov-

ering from their exhaustion, they exhibited a resistance against infection, which spoke for a sound system and excellent physical condition.

The ambulance department of the hospital was a most important one. Starting with only a few cars, this has grown, until now there are upwards of seventy cars in the employ of the hospital. These cars are all driven by Americans, and are attached to different parts of the French and English lines. Their business is to carry wounded back from the field dressing stations and field hospitals, to base hospitals, which are usually situated near a rail head. Quick evacuation of the wounded back to permanent base hospitals has a greater effect on the reduction of mortality than any one other measure. The English found that the mortality was so great from shipping their wounded across the channel, that they were compelled to give it up. So the ambulance has come to play a most important part in the present war, as a connecting link between the trenches and the nearest rail head. When I left Paris early in December, we were receiving patients who had been wounded the day before, and in some cases even on the day of admission.

In summing up the treatment of wounds in the present war, it seems to me that a greater degree of conservatism has shown itself than ever before, except in the cases of compound infected fractures of the lower extremities. In these latter cases amputation is more early resorted to than formerly, with the idea of saving the individual many long years of chronic bone disease. Otherwise, the methods employed are a combating of the infection by means of ample drainage and antiseptic irrigations.



Shrapnel Wound on Dorsal Aspect of Forearm.

[By Courtesy of Dr. Samuel G. Usdahl, of Tucson.]

Original Articles.

REPORT ON THE ALLEN TREATMENT OF DIABETES.

BY LEWIS W. HILL, M.D., BOSTON,

AND

JOSEPH L. SHERRICK, M.D., BOSTON.

[*West Medical Service, Massachusetts General Hospital, Dr. Richard C. Cabot, Boston, Chief of Service; Dr. William H. Smith, Dr. Roger I. Lee, Visiting Physicians.*]

DR. FREDERICK M. ALLEN of the Rockefeller Institute, New York, read a paper in Boston Dec. 2, 1914, before the Suffolk District Medical Society, on his new starvation treatment of diabetes, following the principles laid down in his monograph "Glycosuria and Diabetes." We were so much impressed by his paper that we decided, at the suggestion of Dr. Roger I. Lee, who was then in charge of the service, to try the treatment on a series of cases.

Previously to this our treatment of diabetes on the West Medical Service had been to start the patient off with a fairly high carbohydrate intake, about 100 grams; with 100 grams of protein and 250 grams of fat, or more, and gradually to work down from this, first cutting down the carbohydrate, and then, if the patient did not become sugar-free, cutting down the protein. The fat was always kept high and many patients received over 4,000 calories, our old idea being to make the patient gain weight if possible. If the patient lost weight we were afraid, and we feel that one of the most important things that Dr. Allen has brought out is that a diabetic can lose a good deal of weight with considerable advantage to himself and no harm. We also used "vegetable days" and "oatmeal days"—usually with rather poor results. As to starvation, we were afraid of it, although in one or two cases we had used a semi-starvation day, with thick cream and black coffee, but never for periods of longer than one day at a time. With this treatment our diabetics did fairly well, but the process of getting them sugar-free was a tedious one and a good many cases continued to excrete 0.1% or 0.2% of sugar no matter what we did.

We do not intend to discuss the theory of the Allen treatment—he did that in his original paper—but merely to report our very successful series of cases, in order to show that his treatment is simple, safe and very efficacious in rendering and keeping a patient sugar-free, in a much shorter time than was possible by the old method; that anybody can do it, and that there is no danger of coma.

Our method of treatment, following Dr. Allen's very closely, is as follows: As soon as the patient enters the ward he is put on house diet

without extra bread or potatoes and kept on this for two days to determine his tolerance for ordinary diet and the severity of his diabetes. On the third day he is put to bed and given nothing but black coffee with one ounce of whiskey every two hours from 7 A.M. to 7 P.M.—7 ounces of whiskey in all—representing about 800 calories. The whiskey is usually well borne, although in one or two of the female cases it had to be omitted as it caused nausea. If there is much acidosis, as indicated by the amount of diacetic acid and acetone in the urine, sodic bicarbonate is given, otherwise not.

The patient is kept on this regime until he is sugar-free; in most of our cases it took either two and a half or three days to accomplish this. The loss of weight is very slight; the relief of symptoms, such as pruritus, polydipsia, etc., is very striking and we have never seen any indication of acid poisoning in the cases we have treated by this method. On the whole, patients seem to bear starvation remarkably well. We have never starved a case longer than three days, but would not have hesitated to do so had there been any sugar in the urine at the end of this time.

As soon as the patient is sugar-free he is given a "vegetable day," i.e. vegetables containing not over 5% of carbohydrates, boiled twice, with a carbohydrate content of about 15 grams after boiling (in the boiling about half the carbohydrate is lost). After a single vegetable day the diet is changed to:

Carbohydrate	..... 15 grams
Protein	..... 25 grams
Fat	..... 150 grams

(Our vegetable diets, as well as several other sample diets are given below). From this the diet is slowly raised, increasing first the fat, then the protein and lastly the carbohydrate. The fat is never raised above 200 grams and the calories seldom above 2,200. On this the patients hold their weight, feel well and usually remain sugar-free. They do not gain weight; but as Dr. Allen says, it is much better to be lean and healthy than to be fat and carry one or two per cent. of sugar. Indeed, in some of the more robust cases who are obese, it seems desirable to get rid of this and the calories are kept low on this account. This is supported by Dr. Allen's experiments with his de-pancreatized dogs, for he found that as soon as he tried to make these dogs grow fat they died, whereas if he fed them on only a small amount, and was content to let them stay very lean, they did very well.

Our series is small, and perhaps we have been lucky, but in no case have we had any unfortunate results—never any sign of coma. In every case the patient has become sugar-free and has stayed so, on a reasonable diet which enabled him to hold his weight.

Some of these were severe cases of diabetes,

young people, whom we had treated before by the old method and could not get sugar-free.

When the patient is discharged from the ward he is given written diet slips with two or three menus which he can use on different days, figured out carefully to correspond with his tolerance. The two most important things to remember in this treatment are the following:

First, do not raise the diet too quickly after starvation, and pay just as much attention to the protein intake as to the carbohydrate.

Second, do not worry if the patient loses weight; it will not hurt him.

CASE REPORTS.

The first three are cases which were treated first with the old method and could never be made sugar-free, running from 0.1% to 0.2% of sugar. On the new treatment they responded promptly and were discharged sugar-free.

CASE 1. A woman of 64, diabetic for two years. She was sent in from the out-patient department, where she had been receiving a diet of 50 grams of carbohydrate and 50 grams of protein. On this diet she was putting out 8 grams of sugar a day with moderately strong acetone and diacetic acid reactions in her urine. When the carbohydrate was cut, in the ward, to 30 grams she put out 3 grams of sugar a day. She complained of severe pruritus vulvae. After 16 days of this treatment she continued to put out from 0.1% to 0.2% of sugar a day. Allen's treatment was then started, and after one day of starvation she was sugar-free and remained so for four days on a diet of carbohydrate, 20 grams; protein, 30 grams; fat, 150 grams. The itching had gone. Then the protein was raised to 80 grams, with the carbohydrate at 20 grams, and she immediately showed 1.5% of sugar. This is very important; the protein should not be raised too quickly. This we did not realize in our earlier cases.

A second starvation day, followed by two vegetable days, and a more careful raising of the diet—as follows—kept her sugar-free, and she was discharged so. Her diets were:

Dec. 12. Carbohydrate, 20 grams.
Protein, 30 grams.
Fat, 150 grams—1500 calories. No glycosuria.

Dec. 15. Carbohydrate, 30 grams.
Protein, 30 grams.
Fat, 200 grams—2000 calories. No glycosuria.

Dec. 20. Carbohydrate, 30 grams.
Protein, 40 grams.
Fat, 180 grams—2000 calories. No glycosuria.

Dec. 26. Carbohydrate, 40 grams.
Protein, 40 grams.
Fat, 180 grams—2000 calories. No glycosuria.

Dec. 30. Carbohydrate, 50 grams.
Protein, 50 grams.
Fat, 180 grams—2000 calories. No glycosuria.

Weight on entrance, 119 pounds.

Weight at discharge, 116 pounds.

CASE 2. A Jew of 49, at entrance had 175 grams

of sugar (5.5%), acetone slight, diacetic acid absent. Treated for three weeks with the old method, he got down to a diet containing carbohydrate 15 grams, protein 50 grams—but still put out from 3 to 8 grams of sugar a day. By the old method we could not do away with the last traces of sugar.

The Allen treatment was started with two starvation days. On the second he was sugar-free—but showed 2.6 grams of sugar the following day on 12 grams of carbohydrate and 40 grams of protein. (This was one of the earlier cases when the diet was raised too quickly after starvation.) After one more starvation day and two vegetable days he stayed sugar-free while the diet was raised slowly to 30 grams of carbohydrate and 45 grams of protein, calories about 2000. Discharged sugar-free on this diet.

Weight at entrance, 109 pounds.

Weight at discharge, 110 pounds.

CASE 3. A man of 35, a severe diabetic, entered Dec. 28, 1914. He had been in the hospital the previous July for a month and could never be made sugar-free with the old method of treatment. At entrance he was putting out 2.5% of sugar (135 grams) per day with strongly positive acetone and diacetic acid tests. Two starvation days made him sugar-free, but we made the mistake of not using twice boiled vegetables for his vegetable day after starvation. So on this day he got about 30 grams of carbohydrates, and for a few days he showed from 0.2% to 1% of sugar. Another starvation day was given him and he became sugar-free. This time his vegetables were closely restricted and he was given only enough twice-boiled vegetables to provide about 15 grams of carbohydrates. After this the diet was raised very slowly. He remained sugar-free for three weeks and was discharged so on.

Carbohydrate, 30 grams.

Protein, 40 grams.

Fat, 200 grams.

At no time did he receive more than 2200 calories.

Weight at entrance, 139 pounds.

Weight at discharge, 138 pounds.

These three cases were the first ones we tried, and in each one of them we made the mistake of raising the diet too quickly—either allowing too many vegetables on the vegetable day, or raising the protein too quickly afterwards. With the later cases, after we had more experience, there was no more trouble.

CASE 4. A Greek (male) of 48, diabetic for two months, entered Jan. 14, 1915, with 3.8% (65 grams) of sugar and moderate acetone reaction. There was no diacetic reaction present at entrance. After one starvation day he became sugar-free, but was kept on starvation one day longer and then started on vegetables in the usual way. After the third day a moderate amount of diacetic acid appeared in the urine and continued. The ammonia rose from 0.7 grams per day to 2.6 grams per day, and then varied from 0.3 to 1.5 grams per day. No symptoms of acidosis.

Jan. 18. Carbohydrate, 15 grams.

Protein, 25 grams.

Fat, 150 grams—1360 calories. No glycosuria.

- Jan. 20. Carbohydrate, 15 grams.
Protein, 25 grams.
Fat, 200 grams—1571 calories. No glycosuria.
- Jan. 24. Carbohydrate, 25 grams.
Protein, 35 grams.
Fat, 200 grams—1760 calories. No glycosuria.
- Jan. 26. Carbohydrate, 35 grams.
Protein, 40 grams.
Fat, 200 grams—1838 calories. No glycosuria.
- Jan. 29. Carbohydrate, 45 grams.
Protein, 50 grams.
Fat, 200 grams—2194 calories. No glycosuria.
- Jan. 31. Carbohydrate, 50 grams.
Protein, 60 grams.
Fat, 200 grams—2347 calories. No glycosuria.

Discharged Feb. 1 sugar-free on this diet.

Weight at entrance, 160 pounds.

Weight at discharge, 156 pounds.

This was not a severe case and responded very easily to treatment.

CASE 5. A female of 59, a diabetic of two years' standing, excreted 2.6% of sugar on Jan. 16, 1915, with no acetone or diacetic acid reactions in the urine. Severe pruritus vulvae. Starved two days; sugar-free on the second starvation day, with disappearance of the pruritus.

- Jan. 21. Carbohydrate, 15 grams.
Protein, 25 grams.
Fat, 150 grams—1595 calories. No glycosuria.

From this time the diet was slowly raised until on Jan. 30 she was getting

Carbohydrate, 35 grams.

Protein, 45 grams.

Fat, 200 grams—2156 calories.

She was sugar-free on this and was discharged to the out-patient department after a two weeks' stay in the wards.

Weight at entrance, 135 pounds.

Weight at discharge, 133 pounds.

CASE 6. A man of 52, entered Jan. 10, 1915, with 1% of sugar. He entered for arteriosclerosis and hypertension and the sugar was found in the routine examination of the urine. He was kept on house diet for a few days and his sugar rose to 3.5%. No acetone or diacetic acid. After two days of starvation he became sugar-free and continued so as the diet was slowly raised. He was kept sugar-free in the ward eighteen days and was sugar-free on Feb. 6 with a diet of

Carbohydrate, 60 grams.

Protein, 60 grams.

Fat, 200 grams—2280 calories.

On Feb. 7 the protein was raised to 80 grams and 0.2% of sugar appeared in the urine. The proteid was then reduced to 60 grams and he remained sugar-free on this diet and was discharged so.

In this case after starvation a moderate amount of acetone appeared and continued. No symptoms of acidosis. The ammonia ran from 0.3 to 1.0 grams per day.

Weight at entrance, 160 pounds.

Weight after three weeks' treatment, 156.

Maximum caloric intake, 2525.

CASE 7. A young man of 25, diabetic for eight months, entered Jan. 20, 1915, with 6.6% (112 grams) of sugar and strongly positive tests for acetone and diacetic acid. After a period of two starvation days he was sugar-free and actually gained three pounds in the process of starvation (probably due to water retention).

His diet was then raised as follows:—

- Jan. 24. Carbohydrate, 15 grams.
Protein, 25 grams.
Fat, 150 grams. No glycosuria.
- Jan. 26. Carbohydrate, 20 grams.
Protein, 35 grams.
Fat, 175 grams. No glycosuria.
- Jan. 29. Carbohydrate, 20 grams.
Protein, 45 grams.
Fat, 200 grams. No glycosuria.
- Jan. 31. Carbohydrate, 30 grams.
Protein, 45 grams.
Fat, 200 grams. No glycosuria.

At entrance his ammonia was 1.7 grams per day; after the starvation days it ran from 0.9 grams to 0.3 grams per day. The acetone was a little stronger than at entrance; the diacetic absent except on three days.

On Feb. 5 he was still sugar-free (having been so since his starvation days two weeks previously, and weighed 127 pounds, a gain of seven pounds since entrance. At no time did he receive over 2150 calories.

This was a very satisfactory case; no doubt the carbohydrate could have been raised to 50 or 60 grams, but he was doing so well that we felt it unwise to go any further.

CASE 8. A young man of 20 entered Jan. 30, 1915, with 4.5% (75 grams) of sugar, acetone moderate, no diacetic acid. After two days of starvation he became sugar-free and continued so on two vegetable days. After this his diet was raised as follows.

- Feb. 3. Carbohydrate, 15 grams.
Protein, 25 grams.
Fat, 150 grams—1320 calories. No glycosuria.
- Feb. 8. Carbohydrate, 20 grams.
Protein, 35 grams.
Fat, 175 grams—1850 calories. No glycosuria.
- Feb. 14. 25 grams.
Protein, 50 grams.
Fat, 175 grams—1880 calories. No glycosuria.

It seemed wise to keep this case on a restricted diet for a considerable length of time, as he was a severe diabetic, and so we did not attempt to push up the carbohydrate. He is still in the wards, doing very well on this diet, sugar-free and holding his weight.

Weight at entrance, 116 pounds.

Weight Feb. 14, 115 pounds.

Ammonia at entrance was 1.3 grams per day. On the first starvation day it dropped to 0.3 grams, never rose above 0.7 grams, and on Feb. 14 it was 0.16 grams per day. Moderately strong acetone and diacetic acid reactions.

ACETONE, DIACETIC ACID AND AMMONIA.

Of course the great bugbear of any starvation treatment is coma. We have seen no coma nor any signs of it in the eight cases we have treated.

The ammonia has always been low, only in one case reading as high as 2.5 grams per day, which is not at all a high ammonia. Indeed, in most of the cases it has been very low, usually under a gram a day. This very possibly is due to the low protein intake.

We have seen nothing constant in the appearance or disappearance of the acetone and diacetic acid while on starvation. In one case both disappeared, in others they increased slightly and in others stayed practically the same. (Rough quantitative estimations only.)

WEIGHT.

It will be seen that in most of the cases there has been no striking change in the weight, and we feel that most diabetics while in the ward, at any rate, can get along very nicely on 2,000 calories. The patients are kept in bed only during the starvation; after this they are up and around the ward.

No patient has lost more than 5 pounds during his treatment (most of our cases were in the wards about a month) and no patient has gained more than 7 pounds. In most of the cases it will be seen that the weight at discharge was practically the same as at entrance. Of course the patients were not doing any vigorous work or exercise, and it is quite possible that outside the hospital they would not be able to get along on a diet of such a low caloric value.

Now it is one thing to treat a diabetic in a hospital ward where the diets, urine, etc., can be accurately controlled, and quite another thing to treat him at home. All our diabetics have been discharged to the out-patient department, and it has been found that practically all of them, no matter how well they may do on the ward, show sugar on their return to the out-patient department, perhaps a week or two after they have left the ward. For this reason we have had some very careful diets figured out (for which we are indebted to Miss Eckman, the dietitian of the hospital) and with these diets the patients can keep on just exactly the same food that they had while in the hospital. The time has been too short for us to follow many of these cases on the outside, but we feel that most of them, who are of the average intelligence and perseverance, will do well.

TABLE I.

Protein	10	grams
Carbohydrate	15	"
Fat	7	"
Calories	200	
String beans	4	heaping tablespoonfuls 120gms.
Carrots	2	" " 70 "
Asparagus	4	" " 150 "
Spinach	3	" " 135 "

Cucumbers	3	heaping tablespoonfuls 75gms.
Celery	6	medium pieces 100 "

The vegetables are twice boiled.

TABLE II.

Protein	7	grams
Carbohydrate	15	"
Fat	6	"
Calories	150	
Asparagus	2	heaping tablespoonfuls 75gms.
Onions	2	" " 150 "
Spinach	2	" " 100 "
Cabbage	2	" " 65 "
Celery	6	medium pieces 100 "

The vegetables are twice boiled.

TABLE III.

Protein	29	grams
Carbohydrate	16	"
Fat	167	"
Calories	1654	
Butter	3	squares 50gms.
40% cream	8	ounces
Eggs	1	
Bacon	2	slices 50 "
Salmon		small helping 50 "
Cabbage	3	heaping tablespoonfuls 100 "
Turnips	2	" " 100 "
Parsnips	4	slices 100 "
Carrots	3	heaping tablespoonfuls 100 "

TABLE IV.

Protein	22	grams
Carbohydrate	14	"
Fat	155	"
Calories	1597	
Butter	3	squares 50gms.
40% cream	8	ounces
Steak	1	small slice 50 "
Bacon	2	slices 50 "
Parsnips	8	slices 200 "
String beans	8	heaping tablespoonfuls 100 "
Cabbage	12	" " 100 "

TABLE V.

Protein	38	grams
Carbohydrate	26	"
Fat	198	"
Calories	2107	
Butter	3	squares 50gms.
40% cream	5	ounces
Eggs	2	
Chicken	1	small slice 25 "
Bacon	2	small slices 50 "
Spinach	2	heaping tablespoonfuls 100 "
Onions	1	" " 100 "
Salt pork	2	small slices 50 "
Celery	6	medium slices 100 "
Lettuce		" " 100 "
Olive oil	1	tablespoonful 13 "
String beans	3	heaping tablespoonfuls 100 "
Tomatoes	3	" " 100 "

TABLE VI.

Protein	47	grams
Carbohydrate	34	"
Fat	183	"
Calories	2046	
40% cream	5	ounces
Eggs	1	
Cream cheese	3	cubic inches 60gms.
Bacon	2	large slices 75 "
Haddock	1	small helping 50 "

Olive oil	2	tablespoonfuls	25	"
Lettuce	10	leaves	50	"
Potato	1	heaping tablespoonful.	25	"
Beets	3	"	100	"
Spinach	2	"	100	"
Almonds	10	large	15	"

TABLE VII.

Protein	50	grams
Carbohydrate	48	"
Fat	180	"
Calories	2200	

Butter	4	squares	60	gms.
40% cream	1	cup		
Eggs	2			
Steak	1	small slice	60	"
Bacon	2	large slices	60	"
Ham	2	small slices	60	"
Lettuce	10	leaves	50	"
Asparagus	1	heaping tablespoonful.	35	"
String beans	1	"	35	"
Spinach	1	"	50	"
Orange	1	large	250	"
Bread	2	small slices	35	"

TABLE VIII.

Protein	45	grams
Carbohydrate	65	"
Fat	230	"
Calories	2600	

Butter	7	squares	105	gms.
40% cream	10	ounces		
Eggs	1			
Lamb chop	1		100	"
Spinach	4	heaping tablespoonfuls	200	"
Corn	2	"	100	"
Grape fruit	1		600	"
Kidney beans	2	heaping tablespoonfuls	70	"
Peas	2	"	60	"

TABLE IX.

Protein	62	grams
Carbohydrate	30	"
Fat	250	"
Calories	2700	

Butter	3	squares	40	gms.
40% cream	6	ounces		
Eggs	1			
Salt pork	3	slices	100	"
Bacon	2	slices	50	"
Chicken	1	small slice	50	"
Chops	1		100	"
Turnips	2	heaping tablespoonfuls	140	"
Cabbage	3	"	100	"
Cauliflower	2	"	120	"
Asparagus	3	"	100	"
String beans	3	"	100	"
Parsnips	8	slices	200	"
Bread	2	small slices	35	"

TABLE X.

Protein	77	grams
Carbohydrate	52	"
Fat	266	"
Calories	3011	

Butter	4	squares	60	gms.
40% cream	10	ounces		
Eggs	2			
Turkey	1	slice	100	"
Bacon	2	slices	50	"
Lettuce			10	"
Potato	1	heaping tablespoonful.	50	"
Squash	1	"	50	"
Bread	3	small slices	50	"
Celery	2	stalks	25	"
Almonds	8	large	10	"

Tea and coffee with saccharin is allowed with all these diets.

The bacon and pork is weighed uncooked, and in the calculation of fat and calories, allowance is made for the fat lost in cooking.

The calories in these diets are usually put in round numbers; a variation of 6 or 8 calories, one way or another, makes no difference.

LABYRINTHITIS FOLLOWING OPERATION FOR ATRESIA.

BY GORDON BERRY, M.D., WORCESTER, MASS.

THIS paper considers a case of atresia of the external auditory meatus with unfortunate complications following operation which has puzzled not only the writer but those with whom he has discussed the case. Let me sketch it out roughly that you may see at a glance the picture in its entirety.

HISTORY AND COURSE.

An apparently normal boy of fifteen years, Joseph D. by name, came to the hospital clinic complaining of deafness on the left. He gave a history of a mastoid operation on this side when a baby, and a brief record of the operation was found, but the writer was unable to discover either then or later any present trace of it, so complete was the healing. Examination revealed a normal ear on the right and a normal auricle on the left, with the left auditory canal entering only as far as the bony isthmus, where it became occluded by a solid bony wall. Hearing tests revealed a functioning cochlea. He had been advised by men at the New York Eye and Ear Infirmary (patient's statement) to have an operation performed on this ear. The fact that the canal was already patent two-thirds of the way, making an operation seem relatively simple, was probably instrumental in persuading them to this conclusion, as it did three of us who saw the case in Worcester. The operation was performed in December, 1913, or thirteen months ago. The technic consisted in continuing the canal opening by chisel and curette, somewhat after the method of the Heath operation, until a tympanum was reached. This was carefully left alone. After five days the artificial canal was skin-grafted, not the middle-ear. The hearing was improved. Granulation tissue began to spring up actively in the middle ear, though the operator had thought himself successful in not injuring this cavity. After two weeks a very slight irregularity of gait (toward the left) was noted but not given any significance. In three weeks the boy walked home from the hospital and, on the way, first showed any marked labyrinthine symptoms by falling. Vertigo became rapidly worse. An ocular nystagmus was present and was such as a labyrinthitis on the operated side would give. Clear negative spinal fluid under pressure was removed, without relief. The boy gradually became unruly, irrational, and at times very noisy. He could not stand alone without falling (to the left). His speech was thick and slurred, like that of a drunken man. After waiting two months from the first operation, it was decided that the vertigo would not disappear without

help, and on the basis that it was caused by granulation tissue pressing on the oval and round windows, a radical mastoid exenteration was performed and the offending tissue in the tympanic cavity removed as thoroughly as possible. A primary skin-graft was applied to further control granulations. For a month he was better, but not much. The granulations required repeated cautery and instrumentation to keep under control. At the dressings, pressure applied to the middle ear region made the symptoms of vertigo and muscular incoördination worse. Consultation with surgeons and neurologists offered no solution excepting the suggestion that any measure offering possible relief was justifiable. Meningitis and brain-abscess were considered, only to be ruled out. Two months and a half were allowed to pass, and conditions, instead of improving, were becoming aggravated. The cochlea and the labyrinth on the operative side both responded positively to tests and were consequently active. The mastoid was at no time tender, nor did he complain particularly of headaches. Concluding that granulations had worked their way through the oval or round window and in some way were proving a source of irritation, it was decided to destroy the labyrinth and part of the cochlea in so far as possible on that side, with the expectation that the other side would soon offer compensation and matters clear. Desiring to make this a final effort, the writer did not satisfy himself with tapping the external semi-circular canal or with entering the promontory. Each canal was opened for over half of its circumference. The vestibule was entered from behind and from in front, and easy access established for a probe to pass under and around the facial canal (without disturbing the nerve). The bridge between the oval and round windows was broken down and the basal whorl of the cochlea exposed from here forward until it disappeared around the bend. A slight cerebrospinal fluid escape was noted on opening the horizontal semi-circular canal.

Operative Anatomical Findings. 2.5 cm. in from the anti-tragus or 1.2 cm. from the cochlea (the right drum-head was 3.1 cm. from the anti-tragus), a large canal closed itself off in a smooth-walled round cavity. For a little way there seemed to be a fissure-like lead toward the tympanic cavity, but this became rapidly obliterated. 2-3 mm. further in an opening was found which soon emptied into a typical tympanic cavity, of about the normal size. No drum was present. A suggestion of tympanic ring was seen. No ossicles were found. The middle ear appeared to be lined with thin mucous membrane, and the first operation was stopped here in the hope that this membrane would help to keep the cavity open. The radical and labyrinthine operations revealed still no ossicles, a patent eustachian tube, apparently an open oval window, a small attic, a small antrum, somewhat undeveloped mastoid cells, small pneumatic in type, normally placed semi-circular canals and vestibule and cochlea and facial canal, a vestibule of the usual size, no tensor tympani as far as could be seen. It should be noted that the search for the stapes was made in a mass of fibrous granulation tissue and it may well have escaped detection. Most writers report the presence of this ossicle.

POST-OPERATIVE COURSE.

The labyrinth operation was performed on April 30, 1914, four and a half months after the first

operation. The irritative symptoms referable to the affected side and present before the labyrinthectomy, were now almost gone, and a more marked nystagmus referable to the sound side developed. Following the operation there was a short period of constantly rational mentality. The temperature, which had been normal, rose to 100 or 101° in the afternoon for two weeks, and then quieted. There was an abundant serous flow on the dressings. After three weeks he was gotten out of bed to walk a few steps each day. Granulations were encouraged that the connection through to the meninges might become blocked off. This occurred one month after the operation, and was followed that night by vomiting and paralysis of the external rectus on the operated side. The pupillary reflexes remained normal; photophobia was present and remained for several weeks. The white count at this time was low as usual (7,400). The withdrawal of clear negative spinal fluid from time to time alleviated symptoms a little. Vomiting two to five times daily continued for two weeks, with partial suppression of urine. Caloric and turning tests showed the labyrinth on the operated side to be destroyed, but the hearing apparently but little changed by the opening of the cochlea. In the middle of June, one month and a half after the labyrinth operation, a much reduced cavity was scabbed over, dry, and all but healed, this scab being removed a week later to reveal a completely epidermatized cavity.

Extracts from bed-side notes:—

January. 7th. Ocular nystagmus to right and falls to left. 12th. Cold syringing to A. S. increases right nystagmus; cold syringing to A. D. stops a little the right nystagmus and gives left nystagmus. Blood pressure, 120 mm. 18th. Right turning, head 30° forward; after nystagmus, left, 40-50 seconds; left turning, after nystagmus, right, 50-60 seconds. 15th. 30 c.c. spinal fluid out under pressure, causing frontal headache for five minutes. 21st. 3-4 drops only of spinal fluid out. Noisy. Shurs words more.

February. 4th. Quiet if in bed. Noisy when up in chair. Right nystagmus same; only slight nystagmus to left. 12th. Worse. More noisy. Hid under bed to escape a sick child in next bed which he claimed was annoying him. Radical mastoid operation. 15th. Quieter. Speech a little more slurred. Nystagmus better. 18th. Mentally more rational for first time since radical operation. Speech and nystagmus a little better. 19th. Out of bed for a few steps. 23rd. Walks alone but with difficulty.

March. 8th. Tried his hearing for piano music. Objected to playing the upper notes; enjoyed music in the middle register; did not mind playing in the lower register. 12th. Fell out of his wheel chair. More dizzy. Been unable to walk alone for two weeks. 15th. Hard to manage in the ward. Disobedient. 19th. Nystagmus to either side. Cold syringing for one-half minute in either ear (head back 60°) aggravates this; and this induced nystagmus better on sitting up, to return on lying down. 30th. Limbs seem more incoördinated in left hand and right foot.

April. 7th. Pressure with probe in middle-ear region always exaggerates the vertigo and incoördination. 28th. Cold syringing left, gives nystagmus. Right in 1 1/2 minutes, lasting 3 1/2 minutes. Cold syringing, right, gives nystagmus, left in 1 3/4 minutes, lasting 4 1/2 minutes. 30th. Labyrinth operation.

May. 2nd. Voluntary nystagmus to right marked.

Controlled on looking to extreme left. 5th. No change excepting less control over left arm. 13th. More irritable. Got out of bed and tore off bandage. 15th. Note a slight nystagmus on looking to left. Voluntary nystagmus to right continues. 19th. Restive and disobedient. Pulled off dressing. 22nd. Out of bed a little. 25th. Seems stronger. Walked twice the length of the ward with help. Almost no meningeal discharge from cavity.

June. 2nd. No serous discharge from cavity today. Vomited twice last night. Partial paralysis of right external rectus. 3rd. 30 c.c. spinal fluid out under slight pressure. Left limbs are more spastic and jerky. Partial urine suppression. 5th. A little quieter but vomited twice last night. 11th. Averages two vomitings daily, and urinating once a day. 15th. Vomiting worse; five times today. Ear cavity shows dry scab. 18th. Patient finds that rotating his own head makes him vomit and temporarily relieves his nausea and the bad taste in his mouth. Vomited but once today. A mouth wash helps. 21st. Urine more free. Up on feet today, showing a little better control. Ear cavity epidermatized.

July. 1st. More steady on feet. 5th. Photophobia. Crawls around when nurses are not watching (not trusting his legs). Nystagmus more marked. 11th. Photophobia gone. 15th. Nystagmus less. 23rd. Cold syringing to A. S. gives no reaction in six minutes; to A. D. gives nystagmus in 1 1/4 minutes, gone in 2 1/2 minutes.

By two months after the labyrinthine operation the external rectus paralysis had become much less, and has since remained almost the same. The vomiting stopped; the slurred speech became a little better. The ear continued healed. Late in September (or five months after the last operation) there was but little further change. Under the conviction that there was some deeper-seated irritative or pressure focus at or near the floor of the brain, causing the ocular muscle paralysis, the ataxia, and the vertigo, and feeling that this came under the province of the brain-surgeon, I sent Dr. Harvey Cushing a brief account of the case, in the hope that he might shed some light upon the matter. He most kindly consented to do what he could, and added that my history suggested a serous meningitis, for which he feared but little could be done. We were preparing to send the patient to the Peter Bent Brigham Hospital, but at just about this time he began to improve and we kept him in Worcester. He was increasingly able to control his limbs and unruly periods were less frequent; and he could speak more distinctly.

One year after the first operation and seven and a half months after the labyrinthectomy, he was finally discharged from the hospital. At this time he could walk the length of the ward unaided, but with a characteristically halting gait, could walk up and down stairs, could feed himself, could read, and could speak clearly. He went home to trying conditions, where nagging children, a drunken father, and an over-worked mother made life unpleasant. The boy became steadily worse until in a fit of temper last week he began throwing furniture about the room, and broke a window with his bare hand. The ambulance took him to the police station and thence back to the hospital, where he is now, without since having any further outbreak. During this stay at his home last month he was taken to the State Insane Hospital near the city,

and for a week subjected to careful tests with a view to possible admission; after which he was returned home and declared not insane nor more mentally deficient than his up-bringing could account for.

CONSIDERATION OF CASE.

The case divides itself naturally into two heads: that dealing with the atresia, and that dealing with the labyrinthitis. First as to the atresia and its operative remedy,—Bezold has estimated that one out of two thousand cases show unilateral or bilateral microtia and atresia. The operation has been performed a good many times here in Boston with varying degrees of success. In most cases it has been done in children where both ears were involved. Against the argument that an external deformity infers internal impairment, rendering operative interference useless, Politzer and Kerrison point out that the middle and internal ear come from different embryonic sources than the external; and that faulty development of the latter by no means infers variations in the former. Alexander¹ deduced from many autopsies that in the vast majority of cases with congenital deformity of the auditory tract, the deformity was limited to the conducting apparatus alone, or to the perceiving apparatus alone. Looking at it from the other side, Page² says that "it can be definitely stated that cases of defective development of the internal ear are rarely if ever found to be associated with atresia of the canals in otherwise healthy infants." For instance, one never sees a microtia in a deaf-mute. Alexander¹ insists on a patent eustachian tube, and no facial paralysis, as evidence of normal development of the middle and internal ears. When the child is old enough, the activity of the cochlea can be demonstrated by a hearing test, as was done in the case before us.

Hearing Tests. In this case despite the partial destruction of the cochlea, we seem to get a better hearing than was present before. The sound right ear was almost normal and need not be considered here. On the left, the low whisper vowel sound ("four") could not be heard before the operation; now he hears it at four to five inches away, and the low consonant sound ("six") at fourteen feet (a high note). The loud whisper was heard "ad oram," now he hears it at sixteen feet. The bone conduction has remained the same, seven seconds for a 512 vs. fork (normal = 12"). The bone conduction on the right was also seven seconds. He hears all the forks by bone, and in the left ear when applied to the mastoid, excepting the 64 vs. fork. By air he fails to hear the lower forks, the low limit before the operation being 2048 vs., and after the operation, 1024 vs. From there up he hears the remainder of the normal tone scale excepting possibly a little shading off of the top register. Barany's noise-apparatus was not employed until after the operation on the labyrinth, and appears to negative the contention that the hearing was maintained or distinctly improved, as with its use in the sound ear, he can only distinguish a shout on the left. The writer is inclined to question the absolute value of this test in this case, as the sound ear was plugged

very tight during the repeated whisper tests, ointment being used to further ensure a complete closure of all possible crevices around the plug.

Page's² cases show the development of a working hearing in most of them. Kosokabe³ reports two cases operated on by him in Japan and benefited. Danziger⁴ of New York gives a successful case of particular interest here, as it was the only one the writer could find reported as developing post-operative labyrinthine symptoms (in a nystagmus to the affected side). But this came on four months after the operation, when the patient had been discharged healed, and is ascribed to an erysipelas which developed at this time: the labyrinthitis being due to a "collateral edema". Lewin⁵ of St. Petersburg, also reports a good result. The literature is surprisingly scanty when one considers the number of cases which must go to operation.

This leads to the question of the operative method to be employed. Because the jaw articulation was usually so far back in these cases, Michael Jaeger^{2,6} suggested in 1837 that the entrance be by way of the mastoid cells and antrum. Using this suggestion, some have made this the avenue of approach and skin-grafted up into the antrum, but not with good results. The more recent workers, realizing that the stapes alone is likely to be present, and appreciating the extreme difficulty of keeping the granulations down through a small canal, do not try to preserve the middle ear but recommend a radical tympano-mastoid exenteration, and an early skin-graft. This affords room to work in and moreover ensures a canal which later cicatricial contraction will not make too small. Dr. Page² expresses well the more advanced conservative opinion when he concludes: "that operation is warranted in practically every case of congenital bilateral microtia with total osseous atresia which occurs in an otherwise well-formed infant; that when the child has reached the age of two years and his attention can be attracted by sounds through the air, such as whistles, calls, etc., x-ray photographs should be made (under anesthesia), and the operation should be performed through the mastoid, posterior to the line of the canal. The antrum should be opened and, unless a normal drum-membrane be found, the contents of the tympanum with the exception of the stapes should be entirely removed and a large exposure of the inner tympanic wall obtained. Injury to the jaw can be avoided by working from the antrum forward. The eustachian tube, if present should be closed by curetting."

To go more into detail with regard to the labyrinthine complication following the operation, in an effort to determine whether the results in this case should condemn operating on atresia, necessitates taking up the mental aspect of this case. The boy had not been noted as being particularly backward in school. During

the routine ear examination prior to the first operation he seemed to the writer to possess the average amount of intelligence of a boy of the street. He certainly was normal gaited and spoke distinctly and to the point. Subsequent examination by neurologists pronounced him a mental deficient. Further, an examiner from the Waverley School for Defectives tested him and reported his mental capacity to be that of a boy of ten. It was pointed out that the lad had begun life as an illegitimate child; that a habit of self-abuse established over a year prior to his coming under our observation would indicate moral obtuseness; and that further evidence of mental deficiency could be gained from his disposition when at his best, to hector the older patients or tease the children; or at his worst, to do them physical violence, tear off his own dressing, yell at the top of his voice when angry, or refuse to do as bidden by the nurses. Over against this is the evidence as presented by the asylum authorities that the boy is neither insane nor mentally deficient. The writer is inclined to the opinion that he is a little deficient or backward, if you will, but accounts for these paroxysmic outbursts as merely evidences of an uncontrolled temper which could be generally traced to some irritative cause.

But this explanation does not bring us to a solution of the post-operative complications. We have here a clean initial operation, relatively simple, keeping relatively clean. At a time when the granulation tissue had begun to develop more rapidly, we first get a labyrinthine irritation. A low white count, the absence of temperature, a normal pulse, a negative fundus examination, a negative Wassermann reaction, negative spinal fluid (negative to the globulin reaction, reducing Fehling's solution, sterile, and with normal specific gravity and cell count): these all tend to combat the meningitis idea. From here on the tale is a pure repetition in which we are trying to catch up with Trouble.

Having thus considered the subject of atresia, operative methods for its correction, and the untoward results which this particular case developed, permit me to enter for a moment the other phase into which this discussion naturally leads us, that of the labyrinthitis. In our case there was a certain amount of sepsis in spite of every precaution, and we must think of a possible infective labyrinthitis. But Rutin says in his report of fifty labyrinthine cases (p. 59) that an "acute otitis practically never gives rise to a circumscribed or a diffuse serous secondary labyrinthitis and only exceptionally to a purulent labyrinthitis." He calls attention (p. 42) to a rather frequent complication following the radical mastoid operation where we get a diffuse secondary serous labyrinthitis in one to three days, and clearing after three to five days.

There have been a good many labyrinthine operations done for severe vertigo or unbearable

tinnitus alone. For these the interference has become lately less radical till the writers satisfy themselves with tapping the horizontal canal, or they refrain from the operation altogether.

Labyrinthine Tests in This Case. 10. A reference to the labyrinthine reactions in our case may well be entered here. Before the labyrinthectomy, the tests showed a functioning labyrinth. The nystagmus was toward the right or healthy side. Rotation ten times gave an after-nystagmus toward the left of 40-50 seconds; and rotation to the left gave an after-nystagmus of 50-60 seconds to the right, giving a slightly longer reaction for the sound ear. At the time of reporting, there is a partial compensation so the proportions are not as extreme as they were at first, but we get an after-nystagmus of 12 seconds for the right turning, and of 30 seconds for the left turning.

If now the head be bent forward and the face toward the left shoulder, right turning stimulates the left superior canal, which is now horizontally placed, and gives an after-nystagmus of 12 seconds, while rotation in the opposite direction stimulates the right posterior canal and we get an after-nystagmus of 25 seconds. With the head forward, but toward the right shoulder, turning to the left stimulates the left posterior canal with an after-nystagmus of 11 seconds, while rotation to the right stimulates the right superior canal and we have an after-nystagmus of 25 seconds. In other words, the after-nystagmus referable to the right or sound side is twice as long as that referable to the left, in each instance; a result we would expect after the destruction of the left labyrinth.

The caloric reactions corroborate these results: Cold syringing to the affected ear before the labyrinthine operation elicited a nystagmus in 20 seconds, which disappeared in 4 1/2 minutes; and to the sound ear, in 1 1/2 minutes, which disappeared in 3 1/2 minutes. After the operation, cold syringing to the affected ear gave no response, even after six minutes of syringing, while the sound side gave naturally about the same reaction.

As to the voluntary nystagmus, before the operation it was marked to the sound side and slightly present to the diseased side (an irritative nystagmus), while immediately after the operation the nystagmus was entirely toward the sound side.

Falling is toward the left or in the direction of the slow component. In locating objects with his leg or hand, that is, using the localizing test, he tended to go to the left of the object sought. At present he still has more trouble in controlling the movements of his left arm. If anything, he points a little more to the left or to the outside with the left arm and normally with the right. After syringing the sound (right) ear with cold water, the right arm points to the right, while the left arm points uncertainly to either left or right, but seems less affected by the syringing than the right arm.

Probably on account of his ocular paralysis more than from the nystagmus, there is a tendency to keep the head about twenty degrees toward the left from the mid-line. When the nystagmus to the right was severe, he preferred to lie on his right or on the sound ear.

In other words, all the tests showed an initial labyrinthine or cerebellar irritation on the left, followed after the operation by an excessive irritative nystagmus, right, non-compensated, which later be-

came gradually compensated. Ruttin' says in this connection, that if the labyrinth was totally destroyed, compensation will ultimately become complete.

The tests above noted seem to show a total destruction of the affected labyrinth by the last operation. The vertigo was made worse as was expected, but why did not this clear more rapidly? Alexander¹ keeps his post-operative cases in bed six weeks and Ruttin⁷ deems ten days sufficient. This case has been months rather than weeks, and he cannot yet walk without noticeable attempts being made at muscular co-ordination. Must not the irritative focus be referred to the nerve path behind the labyrinth, or to the meninges? The future conduct of the case will be an effort to keep the boy under favorable conditions where he can continue to learn the control of his muscles. Judging from the past, the writer ventures to predict that ultimately the co-ordination will be almost perfect.

TO CONCLUDE BRIEFLY.

We have here a boy of fifteen operated on for a partial atresia with apparent improvement in hearing. Three weeks later and coincident with the springing up of troublesome granulation tissue in the tympanic cavity, a vertigo developed, which has persisted in spite of a radical exenteration, and then a labyrinthine operation. Five weeks following this last operation, the closing off of the drainage from the meninges in the process of healing was attended by marked symptoms of meningeal pressure, which gradually subsided. The ear cavity became epidermatized in six weeks. Now, thirteen months after the first operation, the ocular nystagmus has become fairly well compensated, the hearing is apparently improved, but a muscular inco-ordination, though much better, continues. The consideration of the case naturally divides itself into two main headings, atresia and labyrinthitis, and is discussed above in the following suggestive phases: the age and operative method for relief of atresia; the results to be expected; the cause of the vertigo in this case; the time and the method for operating for labyrinthine vertigo.

LATER NOTE.

In the discussion following this paper Dr. Hurley offered the diagnosis of "Cyst of the cerebello-pontine angle." In the light of this suggestion the author has read Barany's original article on his Symptom Complex¹² as well as taken up again the tests with reference to their bearing on this explanation. He finds that such a retention of fluid as described by Barany would account for many of the symptoms: as certain phases of the nystagmus, and the pointing tests (see above); and the worse paroxysms seemed to be more or less periodic. On the other hand Barany's picture is not present here in its

entirety. For instance, there was but rare headache, and no pain or tenderness over the mastoid-emissary foramen; a complete stopping of the nystagmus to the left immediately followed the labyrinth operation; Barany's reported cases did not show a paralysis of the sixth nerve (though such might be expected); the hearing did not appear worse; and the lumbar puncture gave only questionable relief. Barany accounts for the cystic retention of the cerebrospinal fluid by inflammatory meningeal adhesions or some analogous agent. For such, in this case we could go back to the mastoiditis of infancy or find some anatomic abnormality, either of which would seem to be possible. The invariable aggravation of symptoms by pressure on the granulations in the tympanic cavity does not seem to be so easily explained, though the endolymphatic or nerve connection might account for this.

In short, Barany's symptom-complex, though not appearing to fit all the complications, does seem to explain many, and the writer would express his appreciation to Dr. Hurley for pointing out this possible solution, which the writer so gropingly anticipated when writing Dr. Cushing.

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THE DIAGNOSIS AND TREATMENT OF SOME RARE FRACTURES.*

By WM. PEARCE COUES, M.D., BOSTON.

THE consideration and study of rare cases of fracture has a fascination all its own, especially as such study may help others when they encounter them. The knowledge obtained by the diagnosis of one of these rare types of fracture often leads to the recognition of others. Some of the types to be recorded are so unusual that the modern fracture text-books make no specific mention of them, others giving only a most cursory account, a few lines at most. In the general surgical text-books of modern date, some are not mentioned at all. The present question of industrial accident work, which is such a live one, will, I hope, add interest to the subject, as

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a recognition of unusual types of fracture becomes more and more important, on account of this new medical legislation.

The question of nerve lesion on account of fracture, except in certain classic fractures, is an almost unexplored territory. Undoubtedly, many obscure troubles from peripheral nerve injury on account of pressure from unrecognized fractures, remain undiagnosed.

The question of x-ray diagnosis of fracture is at the present time more important than ever. It is now an undisputed fact that certain fractures can positively be diagnosed only by the x-ray. This has been unfortunate in a way, as it has tended to make a careful clinical study of fractures suffer. "Let's have a picture," is too often heard in our hospitals and dispensaries, before a careful and painstaking examination is made. Cotton has well said that it is often best to have a radiograph after the diagnosis has been made, and correction of deformity attempted, instead of before. Particularly is this true in practice, where the patient has, perhaps, means to pay for only one visit to the radiographer. Most fractures can be diagnosed without the x-ray by careful patient examination. In children a few types, to be spoken of later, are impossible to diagnose, even under anesthesia. Of late we have heard considerable concerning the condition known as sprain fracture, especially from Ross¹ and Stewart of Philadelphia. The term, I think, is a bad one, as it is somewhat ambiguous. What is meant is that the so-called sprain or traction on ligamentous and tendinous structures produces fracture, often unrecognized, in many cases. If so, the case should be called a straight fracture—the sprain or force applied to the ligamentous structures producing the solution in the continuity of bone being a secondary matter. This condition has been called "masked fracture." Eisendrath spoke of it as follows, "The recognition of sprained fractures requires the systematic use of the x-ray in every case of severe sprain." Ross and Stewart estimated that 15% of the fractures treated in the German Hospital in Philadelphia in 1910 were so-called sprain-fractures. They considered that the x-ray was not essential to the diagnosis, and that the external malleolus was the most frequent site of the fracture. Fifteen per cent. of all fractures are sprain-fractures, according to Ross and Stewart. They believe that sprain-fractures probably are a part of the pathology of every dislocation.

A study of unusual fractures would be incomplete without reference to epiphyseal separations, some of the rarer forms of which were entirely unknown until Poland's classic work on the subject some 16 years ago.

We now pass to a consideration of some special types of fracture of rare or infrequent occurrence. They are of interest to all. They may be the next case we encounter in our work. I shall consider:

In the Upper Extremity:

1. Fracture of the trochlea of the humerus.
2. Children's Colles fracture (sub-periosteal fracture of the lower end of the radius).
3. Separation of the epiphysis of the first metacarpal bone.

4. Fracture of the carpal cuneiform bone.

In the Lower Extremity

1. Fracture of the fifth metatarsal bone by inversion of the foot, and the occurrence of the Vesalianum or bone of Vesalius in the foot, with its relation to mistaken diagnosis of fracture of the 5th metatarsal.

2. Separation of the lower epiphysis of the fibula.

3. Fracture of the middle and external tarsal cuneiform.

I shall dwell at some length on the first case, as it is very rare and the only correct treatment is operative.

Isolated fracture of the trochlea, the horizontal dice-box at the lower end of the humerus, is of very rare occurrence. Most of the cases are examples of bony injuries to the elbow, where this fracture has formed a part of more extensive injuries. Viewing the humerus laterally, we find at the lower end two half-moon shaped projections extending out at right angles from the shaft, the capitellum on the radial side, and the lip of the inner cone of the trochlea on the ulna. These thin, half-moon shaped projections are guarded on each side by the condyles; probably vulnerable only to force applied antero-posteriorly to the flexed elbow, except in cases of violent crushing injury, where the whole region is converted into a bag of bones. Operative intervention has been usually employed in isolated fracture of the capitellum, as the blocking of the joint usually persists till the fragment has been removed, *i.e.* it acts as a foreign body in the joint. The indications for operation in isolated fracture of the trochlea do not seem to be clearly laid down anywhere. Bony blocking can occur in exactly the same manner as with fracture of the capitellum.

REPORT OF CASE.

E. B., 12 years of age, was seen at the Surgical Clinic of the Boston Dispensary, Nov. 29, 1913.

Examination. Well-developed and nourished girl, no previous traumatism to the left elbow. Two weeks ago she fell on her left arm. She was told by a physician that she had torn a tendon in the wrist. She fell with her arm in front of her, striking the elbow on the sidewalk. The elbow was flexed, but how the force was applied to produce the fracture, she does not know. Physical examination showed very slight swelling and ecchymosis noted over the lower third of the ulna, flexor surface. There was slight tenderness on pressure here. The elbow was held semi-flexed. Active flexion or extension was impossible. The head of the radius rotated. Only a very few degrees of passive extension were possible. About the same amount with flexion. There was slight swelling in the region of the external condyle, with pain on pressure here, but

there was no crepitus. The radiograph showed in the lateral view a fragment of bone extending outward at an angle from the joint, upward. It was thought at first that this fragment was from the capitellum and that it was blocking the joint. The antero-posterior view showed nothing abnormal. Forced hyper-extension with pressure over the capitellum and then flexion, gave motion to an acute angle of flexion. It seemed as if manipulation had changed the position of the fragment slightly. The arm was put up in acute flexion. Other radiographs (lateral views) showed that the fragment seemed pushed slightly higher up. The arm was kept in the acute flexed position. Attempts to gain motion were unsuccessful. The elbow remained blocked as before. Nothing being gained after some weeks, operation was done on Dec. 26, 1913, under ether. Lateral incision on the radial side of the joint was made, dissection carried through the superficial and deep fascia and the joint opened. The region of the external condyle was explored and the capitellum exposed. It was found to be intact. Dissection and separation of tissues carried across the middle of elbow joint without finding fragment. I thought best,—unwisely, as it proved,—not to search longer for the fragment, as I supposed that, if the fragment was not the capitellum, recovery with a useful elbow would probably take place in time. Uneventful recovery to exactly the same condition as before operation. A long period was given for chance of improvement with massage and passive motion, but no substantial gain was made, and in August the joint was opened on the other side by Dr. Tenney, and the fragment successfully removed. Also uneventful recovery from the operation. The physical examination in November, 1914, showed extension to practically normal limits. Flexion about two-thirds—a considerable gain. No atrophy, slight keloid condition of the scar of the second operation. Radiograph at this time showed slight roughening where the bone was removed from about the lower end of the humerus.

A search of the literature of fractures brought to light only two other similar cases, which it is of interest to report very briefly with this one.

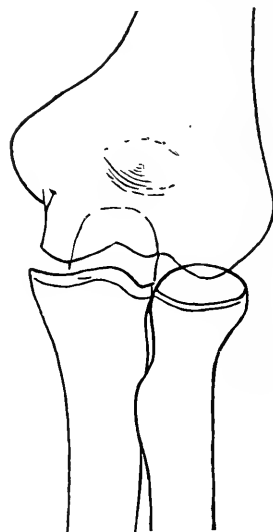


Fig. 3.

Isolated Fracture of Trochlea.
X-ray tracing Dec. 4, 1913. Ant. post. view.
Fragment not visible.



Fig. 4.

Isolated Fracture of Trochlea.

X-ray tracing Dec. 4, 1913. Lateral view. Fragment plainly seen.

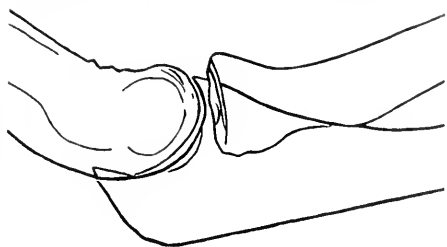


Fig. 5.

Isolated Fracture of Trochlea.

X-ray tracing Nov. 28, 1914. Lateral view after removal of fragment. Note slight roughening lower end of humerus.

They were found in Wendt's "Radiographic Studies of Fracture of the Lower End of the Humerus."

CASE 1. The first was a miner 27 years of age. Accident, Apr., 1908. He fell while working directly on the flexed elbow. Swelling of the left elbow and tenderness on pressure were noted. Flexion of 90 degrees, extension much limited, the radiograph in the antero-posterior view showed no bony injury to the elbow joint. In the lateral view, it showed on the flexor side of the joint a half-moon shaped shadow which was, exactly as in my case, thought to be capitellum. But a stereoscopic picture showed that it was from the middle of the trochlear surface of the humerus. Conservative measures gave no improvement in the position, so operative intervention was decided upon. The fragment was removed by open operation. Perfect healing. After operation and massage, flexion and extension were only slightly hindered. There was some grating in the joint; there was no muscle atrophy. In one year there was full return to normal in every way.

CASE 2. A miner, 28 years. History of direct fall on the flexed elbow. Examination showed right elbow much swollen, painful to pressure over the trochlea. Flexion to a right angle not possible. Extension of elbow much limited. Fluid in the joint. No abnormal mobility found. The x-ray picture in the antero-posterior view showed nothing but a minute-sized fragment in the distal border of the trochlea. The lateral view showed a half-moon shaped shadow from the trochlea. This was a direct hindrance to flexion. Stereoscopic picture showed that the shadow represented the forward, inner part of the trochlea broken off. Open operation was made, incision on the inner side of joint;

removal of the fractured piece; good recovery; at discharge, examination showed flexion and extension somewhat restricted; some grating in the joint; good scar; muscles not noticeably atrophied.

MECHANISM OF THE PRODUCTION OF THIS FRACTURE.

The rarity of the fracture, typical x-ray picture, the half-moon shaped piece of bone sticking up from the lower end of the humerus, only visible in the lateral view, make it of great interest. It would seem as if there must be a definite and constant method in the application of force which produces it. Unquestionably the production of this fracture is made by force applied to the flexed elbow, for it is a flexion fracture par excellence. My attempts to reproduce the fracture on the cadaver were unsuccessful. A direct blow on the upper part of the ulna, with the elbow flexed, gave a high fracture of the ulna. A direct blow on the lower end of the humerus over the trochlea, gave a clean separation of the whole of the lower humeral epiphysis. The only method which produced a fracture in any way similar to the clinical one was direct force, by mallet and forceps used as a chisel to the trochlea itself.

CHILDREN'S COLLES FRACTURE.

This fracture has never before to my knowledge been described with the above title. It is a sub-periosteal transverse fracture of the lower end of the radius occurring in children after a fall on the hand or lower end of the radius, in the same manner as the adult Colles fracture is received. The fracture is somewhat higher than the typical adult fracture. I have never seen a typical example in an adult, and I have seen about a dozen cases in all. The age most common is from 10 to 14 years. The fracture being sub-periosteal, there are clinically no deformity and no crepitus. The cases are often mistaken for sprained wrists. Locally, we have extreme pain on pressure over the seat of the fracture, very rarely ecchymosis and surprisingly little swelling. It is absolutely necessary to have two views, as in all fractures, when the radiographs are taken. The antero-posterior view may only show a little bulge on each side of the radius, low down, so slight as to be missed if one is not expert in interpreting radiographs of fractures. The treatment is not different from that of any other such fracture, without displacement. Recognition is the important thing, as unrecognized, the fracture may lead to subsequent trouble.

The following case illustrates this type of fracture:

CASE 3. K. M., 14 years of age, was seen at the Surgical Clinic of the Boston Dispensary, Dec. 26, 1914.

History. Four days ago she fell, striking on her left wrist. Exact position of arm and wrist when she fell not known to the patient.

Physical Examination showed very slight swelling

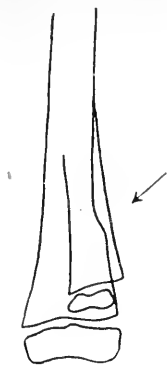


FIG. 1.

Children's Colles' Fracture.

X-ray tracing Dec. 26, 1914. Lateral view. Note slight depression in periosteal line of radius.

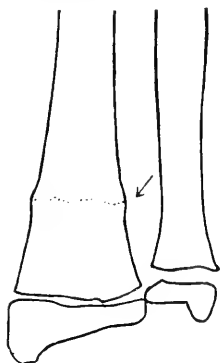


FIG. 2.

Children's Colles' Fracture.

X-ray tracing Dec. 26, 1914. Ant. post. view. Note slight bulging on either side of radius.

of the wrist, extending upward over the lower third of the radius. There were no ecchymosis and no crepitus. There was considerable tenderness on pressure over the lower end of the radius.

The diagnosis before a radiograph was taken lay between sprained wrist, separation of the lower epiphysis of the radius and sub-periosteal fracture. A radiograph showed a sub-periosteal fracture at the lower end of the radius. The antero-posterior view showed slight bulging spoken of above on each side of the lower end of the radius, about one inch above the lower end of the diaphysis. The lateral view, as is usual in these cases, showed a depression plainly in the periosteal line at the point of fracture.

Perfect recovery followed the usual treatment, as would be expected.

SEPARATION OF THE EPIPHYSIS OF THE FIRST METACARPAL BONE.

This bone develops by two centers, one for the shaft and one for the epiphysis, which is at the proximal instead of the distal end, as in the other metacarpals. I have recorded three cases of separation of this epiphysis.³ The diagnosis is not easy without an x-ray. It may be confounded with the Bennet fracture or the "punch fracture," by which is meant a transverse fracture of the metacarpal just above the epiphyseal line, and which displaces the epiphysis with the

lower fragment of the diaphysis. The importance of a radiograph in cases of injury to the thumb where there is question of these lesions is self-evident.

FRACTURE OF THE CARPAL CUNEIFORM.

This is a very rare injury. I have a record of one case, and knowledge of two others, only, one of which was successfully operated on and the fragment causing trouble removed. I have not found any cases in modern works on fracture. The case which I made this diagnosis in was treated for sprained wrist for some time without radiographs being taken. It illustrates well the importance of radiographs in all wrist injuries. There had been disability in this case for some months. After recognition of the fracture and immobilization for a considerable time, a good recovery was made.

In the lower extremity we will consider first, the separation of the lower epiphysis of the fibula, of which one example has come to my notice in a boy subject of fragilitas ossium. This boy had previously had fractures of the thigh, leg, arm and fingers,—six previous fractures in all. The injury was received in jumping from the porch to the ground, the right ankle turning under him. He was able to walk after the accident, but with a considerable limp. Physical examination showed the right ankle was swollen in the region of the external malleolus. There were no ecchymosis, no abnormal mobility, but there was a point seemingly sharper than normal felt in the region of the external malleolus.

The diagnosis before x-ray was uncertain. Sub-periosteal fracture of the lower end of the fibula, an ordinary fracture of the lower end of the fibula or sprained ankle, were considered. Separation of the epiphysis was not considered. The x-ray showed a separation of the lower epiphysis of the fibula. Treatment by plaster of Paris. Perfect union of the fracture in ordinary time, in spite of the condition of fragilitas ossium. It is of interest in connection with this case that the boy had the blue sclerotics, common in this condition of brittle bones, the incidence of which has been recently studied.

Fracture of the fifth metatarsal bone by inversion of the foot was first described by Robert Jones in 1902.⁴ Previous to that time, it was thought that such a fracture was impossible without direct violence. As in other fractures of this type, the diagnosis is the all-important thing, the treatment being generally a routine one. In the production of this fracture, the foot is inverted and the whole weight of the body may momentarily be borne across the foot on the fifth metatarsal. The following case is an example.

CASE 4. The patient, a well-developed woman, seen in August, 1913, slipped in a road at dusk, inverting left foot, so that weight was borne on its outer border. There were great pain and disability at once. Examination showed the outer border of the left foot swollen, a slight prominence at the

base of the fifth metatarsal, with some abnormal mobility. There was exquisite pain on pressure over this spot. There was no ecchymosis. Examination of the ankle was negative. An x-ray showed a transverse fracture at the base of the fifth metatarsal bone. Foot immobilized in plaster of Paris; crutches. Good result, but some pain off and on for some time after the fracture had united. Consideration of this fracture would not be complete without speaking of the occurrence of the Vesalianum or bone of Vesalius. It is excessively rare, but the possibility of its occurrence should always be thought of, in considering fracture of the base of the fifth metatarsal bone, as the radiograph of the Vesalianum gives the appearance of a fracture at the base of this bone, and the only positive way to be sure that we are not dealing with this rare abnormality is to have a radiograph of both feet taken when there is probability of this fracture.

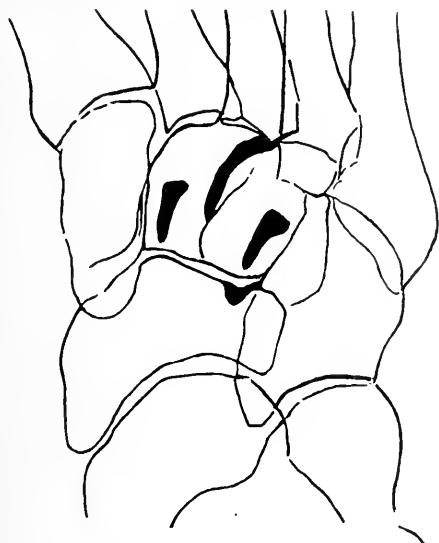


FIG. 6.

Fracture of Tarsal Cuneiforms.
(External and Middle.)

X-ray tracing Dec. 3, 1913. Antero-post. view. Fracture lines heavily shaded. Note chip off scaphoid also.

FRACTURE OF THE TARSAL CUNEIFORMS.

Fracture of the cuneiform bones of the foot is of extremely rare occurrence; probably almost as rare as the fracture of the carpal cuneiform. Only, as there are three cuneiforms in the foot and one in the hand, there is more chance of the possibility of a fracture. I have been unable to find an instance, excepting for the following case, for which I am indebted to my friend and colleague at the Boston Dispensary, Dr. Henry M. Chase, in whose service it occurred. Brief history is as follows:—

CASE 5. Male, 33 years. Seen at the surgical clinic of the Boston Dispensary, Dec. 3, 1913.

History of striking the right foot against the door two nights ago. Patient was sent to the Dispensary by the district physician.

Examination showed much pain over the cuneiform region; the foot was only slightly swollen.

Definite diagnosis absolutely impossible, without radiograph.

The foot immobilized; patient given crutches;

Dec. 5 the x-ray showed multiple fractures of the middle cuneiform and probably also of the external cuneiform, with a slight chip into the scaphoid also. Patient failed to report again for treatment.

It will be seen that in many of these cases of obscure and unusual fracture, treatment does not differ from that in routine cases; but the diagnosis is all-important. Lack of recognition of seemingly slight fractures, particularly subperiosteal, may lead to deformity, even though at the time they seemed trivial affairs. This is particularly so of the long linear cracks in the bones of the leg. If these fractures are unrecognized harm may result in weight-bearing, causing spreading of the fracture and subsequent static deformity. Fragments may break through the periosteum, excessive callus form and cause trouble. Children often complain of surprisingly little pain in subperiosteal fracture; often there is very slight disability. There is no crepitus with a pure subperiosteal fracture. In a few cases, such as the trochlea fracture recorded above, correct treatment is only operative, for the joint will never renew its normal functions while the fragment is in it; and failure to make a correct diagnosis will lead to permanent disability. Each recognized case of rare or unusual fracture leads to the recognition and successful treatment of others.

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Medical Progress.

REPORT ON DERMATOLOGY.

By JOHN T. BOWEN, M.D., BOSTON.

TREATMENT OF LUPUS ERYTHEMATOSUS BY CARBON-DIOXIDE SNOW.¹

Hashund of Copenhagen has contributed an article on this subject to the *Annates*, which is of especial interest on account of the author's association with the Finsen Light Institute, in which cases of lupus erythematosus have been extensively treated by phototherapy.

He claims that the Danish physician Dethlefsen, in 1900, was the first to make use of the caustic effects of cold, in proposing to treat lupus vulgaris by means of chloride of ethyl; soon followed by others with methyl chloride, liquid carbonic acid, etc. Next came liquid air, used with success by Dade of New York. These methods all had the disadvantages of having a superficial and transitory action, which is limited

with great difficulty, and of being quite expensive. It was Pusey of Chicago who introduced carbon-dioxide snow for the same purposes, and developed an essentially practical method of far reaching application. This method is far less expensive than those that preceded it, and as a plastic snow is the agent employed, which may be moulded into various shapes, the surface of application may be strictly limited and the pressure be varied on account of the solid consistency of the blocks of snow. The fact that the snow has a higher temperature than liquid air is of minor importance. It is acknowledged that this method has been pursued for some years with success in America, and was introduced into Europe by E. Hoffmann.

At the start Pusey and Zeisler of Chicago recommended the employment of this method in the treatment of lupus erythematosus, and many writers soon published favorable accounts of their experience in this affection, some even going as far as to say that they had given up all other methods. Others were more reserved. Different methods of treatment have been proposed, that most frequently advocated being the application of the snow from 10 to 20 seconds. Haslund thinks that the various modifications of the technic have not improved on the simple procedure of Pusey's. Histologically the principal alterations caused by the freezing consist in a pronounced necrosis of the superficial layers of the skin, with partial obliteration of the vessels, followed by an inflammatory reactive process of rapid development.

At the time this article was written carbon-dioxide snow had been employed therapeutically in lupus erythematosus for somewhat more than two years. As the Finsen light had previously given moderately good results, although most often after a pretty long course of treatment and without being able to show a large number of complete cures, the snow was at first applied in a restricted way, combined with light treatment. Later, however, the snow was applied exclusively. Altogether about eighty cases were treated in this way. From the start the advantages of this method were recognized. No case was seen in which the method produced an aggravation of the trouble, as occurs when the Finsen treatment or other methods are employed.

Although the writer thinks that the time has not come to speak of definite results, the immediate action is considered as satisfactory as possible. The cicatrix is as smooth as that produced by the Finsen treatment. Different forms of the affection seem to react differently. The purely hyperemic varieties—those described by Bielt under the name "erythème centrifuge"—offer more difficulty to the production of bullae by the snow, and need stronger pressure than usual. These are the forms that sometimes extend a little in the course of treatment, or produce small new lesions at the edges of those already treated, and in which it is commonly advised to use mild

forms of treatment. As the snow is less irritating than most of the older remedies, Haslund employs it in these cases from the start, even when the hyperemic form is present.

On the whole Haslund considers that the treatment of lupus erythematosus by carbon-dioxide snow rivals that by the Finsen method, and one that will prove superior to all others. Its practical advantages are its simplicity, which enables it to be used without much annoyance or loss of time on the patient's part, and its extraordinary efficacy. The cosmetic result is also extremely good. In certain cases in which the results have been most favorable at first, the finishing touches may be hard to produce. Remnants may prove refractory to treatments and demand repeated application of the cold.

For these reasons phototherapy has been for the present abandoned at the Finsen Institute in the treatment of lupus erythematosus in favor of freezing by carbon-dioxide snow. This change of treatment has been based on a comparison of the results attained by the two methods. The patients who have received both methods of treatment have declared themselves impressed with the more favorable results produced by the freezing method. It is only fair to assume, however, that recurrences may take place after the freezing, as well as after other methods, but allowing for this, it represents a distinct advance over the older methods, and should be regarded as the method of choice.

TREATMENT OF CUTANEOUS TUBERCULOSIS AND THE "TUBERCULIDES" BY NEOSALVARSAN.²

Tzanek and Pelbois treated 21 patients by this method in Dr. Darier's service at the Hôpital St. Louis in Paris. These experiments were instigated by the fact that before the introduction of neosalvarsan, salvarsan had given interesting results in affections other than syphilis. Among these are included the protozoic affections, malignant tumors, pernicious anemia, chorea, psoriasis, etc. In most of these affections some good results have been attained, although often variable and doubtful. In the treatment of tuberculosis and the tuberculides favorable results have been reported by Herxheimer-Altmann, Bernhardt and Ravant.

The 21 observations, of which the details are given, concerned 9 cases of lupus, 2 of lupous ulcers, 1 of syphilitic tuberculosis, 2 of tuberculous gummata, 3 of suppurative adenitis, 2 of lichen scrofulosorum, 2 of papulo-necrotic tuberculides, 1 of erythema induratum of Bazin, 2 of lupus erythematosus, 1 of Boeck's sarcoid, 1 of Darier-Roussay's sarcoid.

With regard to the Wassermann reaction, the value of which has been recently questioned in some cases of tuberculides, it was found to be constantly negative when syphilis was absent, as well as Noguchi's reaction, which was performed at the same time, in almost all of the cases.

Intravenous injections were employed, in con-

centrated form, according to the technic of Dr. Ravant, without a single serious accident. The effect of the injections on the general health was uniformly good. During the course of the treatment the strength and appetite of the patients increased. While the local results were not constant, and while neosalvarsan cannot be considered as an infallible therapeutic agent in cutaneous tuberculosis, it was often of great value. In the cases of lupus, the results were characterized by a notable diminution of the erythema, a constant softening of the infiltration, and a more or less complete disappearance of the crusts and scales, three factors which make the subjects much more presentable. Furthermore, the patients who were treated by the x-rays and by scarifications showed a far greater improvement when neosalvarsan injections had been employed previously. It is admitted, however, that the injections were not sufficient to cause a complete disappearance of the lupus tissue, or in other words, a complete cure. In the cases of deeper-seated tuberculosis, however, (scrofuloderma) there was sometimes a complete cure.

The results in the cases of tuberculides were questionable and varying. One case of lichen scrofulosorum disappeared after three injections, and the same result was noted in a case of erythema induratum. Two cases of lupus erythematosus were much improved, and a sarcoïd was healed.

In conclusion it is asserted that cutaneous tuberculosis and the tuberculides may be greatly ameliorated by injections of neosalvarsan, either alone, or combined with tuberculin (method of Herxheimer-Altmann), but the latter procedure is insufficient, and must be supplemented by other local or general treatment, such as that by light, x-rays, radium, scarification, etc. Neosalvarsan shows its most marked results in the treatment of tubercular adenitis.

SOME CUTANEOUS EFFECTS OF RADIUM AND THE X-RAYS.³

In the French Société de Dermatologie et de Syphiligraphie on June 4, 1914, Jeanselme presented a woman who had been burned with sulphuric acid, five years previously. The burns were multiple, but for the most part superficial, and healed in less than two months. The cicatrices, however, were disfiguring, red and keloidal, and radium was employed with the hope of producing a better cosmetic effect. For a year three applications a week were made, taking care to filter the rays. Later, having been admitted to the hospital as an attendant, she began to make the applications herself, observing the rules prescribed for six months, afterward using them without filtering for four months. At the end of that time she developed a dermatitis, which obliged her to stop all treatment, the pain being very severe, for two months. There was found to be a very marked contrast between the islands of tissue subjected

to the radium treatment, and the parts not so treated. A large facial cicatrix and one on the wrist had been treated with special energy, and especially by the non-filtered rays. The keloidal appearance had been much improved and had even disappeared over large surfaces. In these places the cicatrix was extremely uniform, and of a pronounced white color, but surrounding it were deeply pigmented areas, of a bistre or sepia color. Here and there was a network of dilated capillaries of a bright red color. A cicatrix in the pectoral region, which had received only a few non-filtrated rays, showed still in part a raised keloid; but the pigmented spots were light in color, and there was only a suggestion of dilated vessels. A cicatrix of the shoulder, that had not been treated by radium, had a decidedly keloidal appearance, although there had been some spontaneous retrogression. There were no pigmentation, nor telangiectasis. In a word, the cicatrices following a sulphuric acid burn had diminished, little by little, without active treatment, while the appearances that had followed a dermatitis produced by radium were most disfiguring.

Replying to a question by Jeanselme as to what could be done to ameliorate these disfigurements caused by radium dermatitis, Pautrier replied that he had had much experience with attempts to improve the pigmented scars and telangiectases caused by the application of x-rays to produce epilation, a procedure that he strongly condemns, since complete epilation by x-rays can never be attained without cutaneous lesions; he has frequently seen late reactions, occurring a year or a year and a half after the applications. For treating these deformities he has tried scarification, electrolysis, and the fine-pointed galvano-cautery. The results were mediocre and slow. Perhaps the best results were from the filiform douche, which must be used with strong pressure.

At the same meeting Jeanselme exhibited another case, that of a woman of 28 years, who had had for six or seven years, enlarged glands in the carotid region, especially on the left side. There were also enlarged glands in the submaxillary, submental and axillary regions. On the left side of the neck there is a large "erectile" surface covered with interlacing telangiectases, with some detached foci at the periphery. The patient asserts that these vascular changes are not congenital, but began to appear six years previously, when she was undergoing treatment by the x-rays for the enlarged glands.—a treatment that was continued through a whole year, with the result that the glands were much diminished in size. The treatment was suspended after a year, however, because of the appearance of a cutaneous erosion, which was followed by superficial scars and by vascular hypertrophy. The first of these telangiectases, which were present in detached "islands," had appeared two months after cessation of the treatment and they had continued to increase

CHALK PASTES.

Unna⁴ refers to the prominence in dermatological therapeutics that has been occupied by chalk, since it was incorporated in Wilkinson's ointment for the cure of scabies. Later, Hebra, Jarisch and others lessened the amount of chalk in this prescription, also used in pruritic eczemas, and other obstinate skin affections, until its importance was rendered negative. In 1884 Unna proposed the addition of chalk to the old mixture of linseed oil and lime water, a household remedy for burns, as improving its consistency. The advantages of this composition are that the weak alkali of the lime water saponifies a small part of the oil, which then holds the rest of the oil in emulsion, and this emulsion on account of its property of mixing with water, allows evaporation from the skin, hence its cooling effect. A further advantage is that cooling basic substances, such as lead water, may be added to it, and the consistence of a paste is attained by the addition of the chalk, or of bicarbonate of soda, or zinc oxide. The following formula was recommended.

Ol. lini.
Aq. calcis 5ā 20.
Cretae.
Zinci oxydati, 5ā 30.

This mixture he called Pasta Zinci Mollis, belonging to the group of cooling pastes, which are not only drying, but also cooling. Its indications are weeping eczemas of the genitals and of the head, burns of the second degree, and toxic cutaneous inflammations produced by iodiform, sublimate, chrysarobin, pyrogallol, etc.

Although at first the large amount (30%) of chalk in the Pasta Zinci Mollis was employed solely to increase the consistency, experience soon showed that it had a marked effect in increasing the analgesic properties of the basic reacting lime water. It is noteworthy that the disinclination of all surgeons since the era of Listerism, to employ the linseed oil and lime water liniment in burns has not been able to banish this remedy from popular application, on account of the analgesic action of the lime water combined with the analgesic and slightly reducing effect of the linseed oil. None of these properties are possessed to any extent by modern antiseptics.

A new employment of the chalks has been devised by Unna by combining them with mucilage of gum arabic in the following proportions:

Calcium carbonicum	40
Zincum oxydatum	20
Mucilago gi. arabici	20
Glycerin	10
Aqua calcis	10

To this may be added a small amount of thymol, or menthol, to keep it. As it hardens on exposure to the air, it should be kept in tubes. This forms a homogeneous paste, which leaves

upon drying a firm dry mass upon the skin. It combines the anti-inflammatory and analgesic action of the basic carbonate of calcium with the drying and absorbent properties of the gum pastes. The chief indication for this paste is the rapid drying up of large edematous, erythematous and oozing surfaces. Severe edema of the face, neck, and extremities in the course of chronic eczema is a condition specially suited for the paste, situations which have hitherto been treated by thick layers of meal, talcum, carbonate of magnesia, etc. There is usually speedy improvement in 24 hours, whether the inflammation has a physical causation, such as heat, sun's rays, cold, or has been produced by chemicals, as chrysarobin, pyrogallol, resorcin, etc. A second indication, of great importance, is the chance to dry up all fat salves and fat pastes by covering them with the chalk paste. This is especially valuable in the case of very irritating applications, such as chrysarobin, as it limits the secondary inflammatory action upon the adjacent parts of the skin.

A third indication for the chalk paste is to keep the skin dry about wounds, oozing skin affections, and fistulae. It tends to check the extension of progressive inflammations, the spread of the organisms of pus and of erysipelas, and of toxic, bullous dermatitis. It is valuable especially in the first stages of vesicular and weeping eczemas, until a certain degree of drying has been attained, and in varicose ulcers of the lower leg, complicated with eczema. The pastes are not to be rubbed in hard or for a long time, but simply spread lightly over the skin, when they dry quickly. The paste is to be re-applied in places from which it has come off, from friction of the clothing, from perspiration, or from oozing, and this may be done once or more a day, according to the need.

SKIN DISEASES IN THE AMERICAN NEGRO.

Hazen⁵ of Washington, who has had abundant opportunity for observing skin diseases among the colored portion of the community, has summarized his observations, based entirely upon personal observation. Howard Fox has previously written on the subject, his statistics being obtained from the clinics at Johns Hopkins Hospital and from the Central Dispensary in Washington. The cases on which Hazen's paper is based were 2000 in number, and were observed partly in Dr. Gilchrist's clinic at the Johns Hopkins Hospital, partly in the medical clinic at the Children's Hospital in Washington, but chiefly in the dermatological service at the Freedmen's Hospital in Washington. Out of the 2000 cases, 718 were full-blooded negroes, and 543 had much more negro than white blood; the remaining patients were mulattoes, that is the white blood either predominated or was about equal in amount to the negro blood.

It was found that acne vulgaris was about as common among negroes as among whites, con-

trary to the belief of Howard Fox, and that there was little difference in its response to treatment. It is most interesting to note that the milder type of skin cancer is almost unknown among negroes, and the more malignant type is also rare. Also, the so-called precancerous lesions, especially the seborrheic warts, are very rare among the colored, the pigment probably acting as a preventive, as Hyde believed. On the other hand, chloasma, keloid, and vitiligo are, as has been known for a long time, much more common in the negro. Hazen refers to two remarkable cases of vitiligo, in which the loss of pigment developed within 24 hours, there being marked constitutional disturbance at the time. In another case spilling of hydrocyanic acid on the skin seemed to be the exciting cause, as the lesions appeared at the point of contact of the acid.

With regard to the production of x-ray dermatitis, the x-ray operators in Washington agree that the negro skin is much less easily affected than the white. Eczema is less common among the colored, and seems to respond more readily to treatment. When present it is apt to be of the papular and squamous types. Erythema multiforme, furuncle, and impetigo contagiosa are all less frequent in the negro, as well as lichen planus and lupus erythematosus. "Moles" and port wine marks are very uncommon in the negro, and singularly enough the same is true of pediculosis capitis, though pediculi in other situations are equally common in the two races. Hazen and Fox agree that psoriasis is much less common in the negro, but when present runs about the same course as in the white. Hazen, contrary to Fox, considers scabies more common among the colored.

The skin of the negro is naturally very oily and the face is more greasy than that of the average white person, but with regard to seborrhea, we do not often find the yellowish patches on the chest or back, nor the acute forms of so-called seborrheic dermatitis. Yet the dry type is frequently seen both on the face and body. On the face the lesions are white and scaly, and form rings which are very chronic, often causing temporary loss of pigment when the scales disappear.

Practically all authors agree that syphilis is more prevalent in the negro race, a fact not to be wondered at considering their environment. Yet extragenital chaneres are very rare. In ten years Hazen has seen but one, and there has not been a single case in five years at the Freedmen's Hospital. Also macular and maculopapular syphilides are uncommon, which cannot be explained by the color of the skin concealing the eruption, since they are just as rare in mulattoes as in full-blooded negroes. Papular syphilides, on the contrary, are very common, and especially the large papular type, as are also

condylomata. Tertiary syphilis is not more common among the negroes, in proportion to the total number of cases of syphilis. Ringworm of the scalp is more common than among the whites, as is also urticaria, both of the ordinary and of the so-called "giant" type. Hazen remarks that in a majority of the cases of urticaria it is possible to get a history of a heavy indulgence in cabbage as the cause of the outbreak. Tuberculosis of the skin in any of its forms is just as common in one race as in the other, which is surprising when one considers how common pulmonary tuberculosis is in the negro.

ECZEMATOID RINGWORM, PARTICULARLY OF THE HANDS AND FEET.

Hartzell⁶ relates several instances of the form of ringworm described recently by Sabouraud, as occurring especially between the fingers and toes. The first case was that of a youth of 17, who had an inflammation of the skin of the outer side of the left leg. The inflamed area was about the size of the palm, quite ill-defined at its borders, slightly scaling, and somewhat itchy. It had existed for about a month. Microscopic examination of the scales showed numerous mycelial threads, and the affection rapidly disappeared under the use of a parasiticide ointment. This patient had formerly had an extensive ringworm of the scalp which had lasted until he was 15 or 16 years of age.

The second case, that of a woman of 50, had an obstinate affection of the skin of the plantar surface of the toes of both feet, which consisted in an unusual dryness, with slight fissuring, scaling, and some itching, which had lasted a number of years. It resembled mostly a mild squamous eczema and had been treated by numerous kinds of ointments and lotions, together with the x-rays, without especial improvement. Mycelium in small amount was found under the microscope, and a complete cure was effected by the use of parasiticide ointments.

The third case is that of a man of 24 who had suffered for three or four months with an affection of the skin of the toes of both feet, characterized by redness, scaling, and fissuring in the flexures and between the toes, accompanied by moderate itching. It was slowly spreading backward upon the soles, and had first appeared while the patient was in Panama. Mycelium was found microscopically and a cure was quickly attained by a parasiticide ointment.

The fourth case was that of a youth of 17 who had a chronic inflammation of the sides and palmar surface of the right index and middle finger, with a portion of the palm adjacent. It looked like a mild scaling eczema, for which it had been mistaken, but mycelia were demonstrated in the scrapings. He said that he had had a ringworm of the axilla and thighs the previous summer.

Hebra, more than fifty years ago, described a peculiar form of dermatitis which occurs on the inner surface of the thighs, and on the scrotum, accompanied by itching and scaling, sometimes by oozing and crusting. It had many of the appearances of eczema, and he therefore gave it the name of eczema marginatum, on account of the usually sharply defined border. Later Köbner found mycelial threads, which established its parasitic nature. This affection has long been familiar to dermatologists, who have recognized that it was not a true eczema, although resembling it. Sabouraud has called attention to the frequent occurrence of eczematoïd inflammation of the hands and feet, and particularly of the fingers and toes, which he found was caused by the same fungus that causes the eczema marginatum of Hebra. The latter had been universally regarded as an unusually inflammatory form of ringworm, caused by the same organism that causes the ordinary forms, the greater degree of inflammation being due to the heat, moisture and friction due to the situation. Hebra, however, had noticed that when the hairy parts were attacked by eczema marginatum, no changes were produced in the hairs; they retained their color, did not lose their glossy appearance, fall out, nor break off, and no one had ever succeeded in demonstrating the presence of fungus in the hairs. Sabouraud found that these eczema-like forms of ringworm are produced by an organism that differs botanically from all the forms of ringworm, so that it may easily be demonstrated under the microscope. He has called this fungus the epidermophyton inguinale, and shown that it differs from all the ringworm fungi, not only microscopically, but also culturally, and unlike the trichophyton does not invade the hair, but only the upper layer of the epidermis.

Hartzell asserts that this form of parasitic eczema undoubtedly occurs very frequently, as will be found when it is suspected in every case of eczema of the fingers and toes. Sabouraud says that eight out of every ten cases of so-called intertrigo of the toes are actually parasitic, the result of infection with the epidermophyton fungus, and that many of these cases have been preceded by eczema marginatum of the groin or axilla. The affection is more common in the well-to-do classes. Hartzell has found the ointment that was suggested by Whitfield, viz., one containing 3% of salicylic acid and 5% of benzoic acid most effective, but that it must be used with caution in very inflammatory cases, as it sometimes causes much irritation.

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Reports of Societies.

NEW ENGLAND OTOLOGICAL AND LARYNGOLOGICAL SOCIETY.

MEETING OF THIS SOCIETY HELD JANUARY 19, 1915, AT THE BOSTON MEDICAL LIBRARY. The President, DR. GEORGE L. RICHARDS IN THE CHAIR.

A paper was read by DR. GORDON BERRY entitled

LABYRINTHITIS FOLLOWING OPERATION FOR ATRESIA.*

DISCUSSION.

DR. JOHN J. HURLEY emphasized the fact that in this case the atresia was only an incident and had no connection with subsequent events.

He approached the subject with considerable trepidation in view of the fact that such an authority as Dr. Cushing had been consulted in the matter. In the light of the very accurate details presented by Dr. Berry, Dr. Hurley presented the following proposition: That never at any time from start to finish, was this a case of labyrinthitis.

In defense of this proposition Dr. Hurley made the following points:—

1. If it is claimed that this is a case of labyrinthitis which is causing these symptoms, it must be clear that if we eradicate the labyrinth, the symptoms should disappear. But we have eradicated the labyrinth under the most aseptic conditions, and the symptoms not only do not disappear but grow worse. Unless we are ready to meet the first principle of logic, the principle of cause and effect, we must reject the labyrinth as an etiological factor in the case.

2. Dr. Hurley called attention to the fact that not one symptom in this case was traceable to the following cranial nerves: 1st, 2nd, 3rd, 4th, 7th, 11th and 12th.

3. On the contrary, every symptom was traceable to the following cranial nerves: 5th, 6th, 8th, 9th and 10th. Even if the labyrinth had not been ruled out already, there is no labyrinthine condition which could have involved all these nerves. The conclusion is inevitable, that the etiology must be sought for at a point where these nerves are in close proximity, much as one makes a diagnosis of hemorrhage in the internal capsule.

Where are the nerves so converged? At one point only, the cerebello-pontine angle. Dr. Hurley said that the symptoms, viz., nystagmus, vertigo, nausea, vomiting, incoherent speech, delirium and paralysis of the external rectus, all pressure symptoms, could have their origin in pressure at this point only.

4. What could cause pressure at this point? Tumor ruled out by shortness of duration and gumma by negative Wassermann. Cerebellar abscess ruled out by absence of all signs of suppuration, negative temperature, negative spinal fluid, negative blood.

5. Lumbar puncture always relieved symptoms. For a month after operation, cerebrospinal fluid escaped from the wound, which was purposely kept open and during this time there were no symptoms. At the end of the month the wound was allowed to close, thus stopping escape of spinal fluid, and this was immediately followed by return of symptoms in aggravated form.

* See JOURNAL, page 700.

6. On making a lumbar puncture, the fluid was normal in appearance, but escaped under higher pressure than normal.

7. Taking into account the foregoing six points, Dr. Hurley submitted that if it could be demonstrated that a condition of increased pressure of the cerebrospinal fluid could be imagined, which focused the pressure on the 5th, 6th, 8th, 9th, and 10th cranial nerves, the diagnosis in this case would be established.

8. Such a condition does exist, and the train of symptoms arising therefrom is the latest work of Barany of Vienna, and is known as Barany's symptom-complex.

9. Dr. Hurley showed by a sketch on the blackboard that the 5th, 6th, 7th, 8th, 9th, and 10th cranial nerves took origin from the floor of the pons and the lateral cisterna and radiated outward through the cisterna. An adhesion at this point would cause a cyst of the lateral cisterna, and the increased pressure would be demonstrated by focal symptoms on the above nerves, with the exception of the facial (Portio dura) which would not be affected unless the pressure was enormous. The 1st, 2nd, 3rd, 4th, 11th and 12th nerves would not be affected, as they do not run through the lateral cisterna.

10. Dr. Hurley considered the case an inflammatory cyst of the cisterna pontis lateralis, with the following symptoms from pressure: 5th nerve, occipital headache; 6th, paralysis of external rectus; 7th, no symptoms; 8th, tinnitus, disturbance of hearing, nystagmus; 9th, nausea and vomiting, vertigo; 10th, partial paralysis of the tongue, incoherent speech.

11. Prognosis, good.

12. Treatment, medical. The use of drugs, such as atropine and calcium lactate, to cut down the secretion of cerebrospinal fluid. Failing in this, surgical methods to do the same. Lumbar puncture and decompression through the mastoid, elevating the dura on the posterior surface of the petrous portion of the temporal bone, breaking into the cerebrospinal circuit at the aqueductus vestibuli.

DR. D. HAROLD WALKER: I never before heard of a case just like this one. Dr. Hurley's description of Barany's symptom-complex interests me. I thought, when Dr. Berry gave me a memorandum of his case, that it might be one of that kind, one where there are adhesions formed in the cerebellar fossa, causing localized areas, the drainage of which is obstructed, and causing variations in the flow of perilymph through the aqueductus vestibuli.

DR. E. A. CROCKETT: On looking over Dr. Berry's notes on this case, I came to the conclusion that it was a case of cerebellar abscess, and I hope that Dr. Berry will report again on this case a year hence.

I do not believe there ever was a suppurative process in the middle ear. It is, I think, a congenital lesion. I do not think that the labyrinthine operation was necessary. On further considering the Barany symptom-complex and hearing Dr. Hurley's careful analysis, I feel that possibly I would give up my earlier diagnosis of cerebellar abscess.

DR. GEORGE A. LELAND: I had the pleasure of hearing and reading Barany's paper on the development of his symptom complex, which he presented at the International Medical Congress in London a year and a half ago. On hearing Dr. Berry's paper, it struck me that there were many symptoms conso-

nant with Barany's. I do not think we can make a definite diagnosis from the paper as read this evening so much was omitted. There arises the question of tenderness of and behind and below the mastoid, sometimes present, sometimes not; also the combination of vertigo, nystagmus, tinnitus, nausea, disturbance of speech should be noted, whether nystagmus was of long or short duration, and quickly or slowly excited by the caloric test. These symptoms have much to do with the question, especially if they are not constant. Where there is a transient paralysis of the 6th; where there is variation of the symptoms with the amount of pressure of cerebrospinal fluid, that is, diminished by its subsiding; also including such irrational symptoms, smashing things, unaccustomed violence, probably loss of memory for very recent events; things which he would do he does not do, or he does things he knows better than to do and then he forgets he has done them. Perhaps he would complain of headache and then deny it a few hours afterwards. These would point to intracranial pressure which was interpreted by Dr. Cushing as internal hydrocephalus, or serous meningitis. This intracranial pressure, as I look upon it, may also be caused by a dilated cisterna, as Barany has shown, though he did not mention such a transient change of disposition in any of his cases, as I remember at the moment.

DR. F. P. EMERSON: I quite agree with Dr. Crockett that the evidence all points to an atresia of the canal that was of congenital origin. In a differential diagnosis of the form of labyrinthitis present, it would seem as though we could exclude every form except that of a serous diffuse labyrinthitis. The fact that the vestibular reaction was still present would exclude the diffuse manifest or latent forms of purulent labyrinthitis. Some cases have been reported in which during the granulating stage following a radical operation a fistula was formed. This might account for a serous labyrinthitis, as it did not apparently come on during the first three days following operative interference, as we would expect. I am inclined to believe that there was a serous meningitis present, but whether it was secondary to a focus in the labyrinth or cerebellum, I do not think we can tell. Dr. Berry is entitled to a great deal of credit for reporting such an obscure and interesting case.

Book Reviews.

Evolution of Sex in Plants. By JOHN MERLE COULTER. Chicago: University of Chicago Press. 1914.

This monograph from the department of botany of the University of Chicago presents a valuable microscopic study of the evolution of sex in the vegetable kingdom. The author considers that the significance of sex differentiation lies in the fact that it makes organic evolution more rapid and more varied. The book is illustrated with forty-six figures in the text and forms a valuable contribution to the philosophy of evolution.

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126 Massachusetts Ave., Corner Boylston St., Boston, Massachusetts.

CONSTRUCTION OF LOCAL TUBERCULOSIS HOSPITALS.

THE attention of the medical profession of Massachusetts is called to House Bill 2088, a petition introduced by Representative George M. Worrall of Attleboro, which asks for a year and a half extension of time within which cities and towns shall construct tuberculosis hospitals. This was introduced under suspension of the rules and referred to the Committee on Public Health.

In 1911 the so-called Tuberculosis Hospital law was passed after long and grave consideration of the tuberculosis situation in this state. This law is to the effect that every city shall construct and maintain a local tuberculosis hospital for the care of advanced consumptives within its midst. At the request of the State Department of Health towns also may be included

within this law. This law is an eminently wise and sane one. At the present time, out of thirty-five cities in Massachusetts, sixteen have complied with it. In addition to these there are two town hospitals, Clinton and Westfield, and one county hospital, the Hampshire County Sanatorium. The present Legislature has made an appropriation to build another county hospital, in Barnstable.

The bill under consideration has the strong backing, as is naturally to be expected, of senators and representatives coming from districts in which there is no local tuberculosis hospital and which wish to evade spending the money to provide one. The State Department of Health has given to such cities until September 1st of this year to comply with the law. At the end of this period the matter will be put in the hands of the Attorney-general to see that it is properly enforced. The present bill nullifies this act of the State Department of Health and allows an extension of time until January, 1917. This is a distinct injustice to those cities and towns,—Boston, Cambridge, Chicopee, Clinton, Fall River, Fitchburg, Haverhill, Holyoke, Lawrence, Lynn, New Bedford, Pittsfield, Somerville, Springfield, Salem, Westfield, Waltham, and Worcester,—that have complied with this law. It continues for two years more the handicap under which our state sanatoria are now laboring, namely, that our beds are kept filled with patients in the advanced and dying stages of the disease, who, in justice to themselves and their friends, should be cared for in local hospitals near their friends and relatives, while in addition it prevents the state from caring promptly for those patients, for whom our sanatoria are primarily intended, in the incipient and favorable stages of the disease.

Furthermore, this law, if passed, will extend for a year and a half the time in which cities and towns of 10,000 inhabitants and over must equip and maintain a local tuberculosis dispensary. The act requiring such dispensaries was passed in 1911, at the same time the one requiring tuberculosis hospitals was enacted. The State Department of Health has given cities and towns coming under the provisions of this act until July 1st of this year to comply with it. The establishment throughout the state of such dispensaries as this will be one of the greatest steps in advance in controlling and eradicating tuberculosis from our midst. This law, if passed, will delay this good work over eighteen months.

If passed, this law will constitute a distinct backward step in health matters in Massachusetts. Every physician is urged to see his representative and to use all the influence he has to oppose the passage of this act.

HEALTH CONDITIONS IN PANAMA.

THE penalty the Caucasian has to pay for attempts to conquer lands with unsuitable climatic conditions is exemplified in the Canal Zone, as shown by the recent reports of Lieut. Colonel Charles F. Mason, chief health officer.

In his annual report, covering 1914, he shows that among the negroes the hospital record was 191.93 per thousand, while among the whites it was 523.63, or nearly three times as much. Also the number of laborers constantly non-effective among the whites was 23.20 per thousand, while among the blacks this was only 10.16, or less than half. The latest report from that region, that for February, 1915, gives substantially the same figures, the non-effective rate for whites being 22.55 and that for blacks 8.58 per thousand.

A consolation which it offers, however, is the comparison of the death rate per thousand. During 1914 this was 3.13 for the whites and 4.63 for the blacks, which would seem to show that although the sick record for the Caucasian transported to an alien climate may be twice as high as that of the native population, his vitality is also greater. The above discrepancy may be also explained by the fact that the non-effective list is largely made up of those placed *hors de combat* by malaria, for which the death rate is relatively low.

General health conditions in Panama and the Canal Zone appear to be improving, as evidenced by the diminution from month to month of the number of cases admitted to hospitals. For example, in February this was 294.17 per thousand, as opposed to 332.87 in January and 437.70 in December. This decrease is undoubtedly due to the education of the native population in prophylactic measures by Dr. Mason and his assistants. Throughout the Canal Zone the school children in the higher grades are being taught

the rôle of the mosquito in the transmission of disease. During 1914 all the school children in Panama, Colon and the Canal Zone were vaccinated, with "takes" varying from 60% to 80%.

Among other measures looking to the conservation of the public health might be mentioned the institution of an annual physical examination of all gold employees in this region. Also it has been made compulsory for laborers employed by the government to take quinine for at least a month after an attack of malaria.

The incidence of this latter disease shows a steady decrease and it is also gratifying to note that the death rate for malaria was reduced more than 50% in 1914.

The death rate per thousand in Panama City for 1914 was high, 32.85, but this is understandable when we observe that half the deaths were of children under five years and due largely to gastro-intestinal disorders, the results of maternal ignorance.

Dr. Mason comments on the little known clinical fact that the negro race is much more susceptible to primary pneumococcic infection of the sinuses and the middle ear than the white, also upon the prevalence in this race of obliterative syphilitic endarteritis, especially in the West Indian negro laborers. He remarks that there seems to be widespread luetic infection among this class of employees.

MILK LEGISLATION IN MASSACHUSETTS.

IN the issues of the JOURNAL for February 25 and March 25 we commented editorially on the labor clean milk bill, then and now still pending before the Massachusetts General Court. This bill has recently passed the Senate and had been ordered to a third reading in the House. Unfortunately, however, at this juncture, as a result of the determined and persistent opposition of the Massachusetts State Grange, a substitute measure was introduced giving power to the department of animal industry, to control all milk inspection by the State Health Commissioner. The text of this pernicious substitute is as follows:—

"The state department of health and boards of health in cities and towns shall have authority to prohibit the shipment, sale or delivery of milk, skim milk or cream under conditions which, in their judgment, are detrimental to public health. In case they decide that milk, skim milk or cream from any dairy is produced under such conditions, they shall give written notice of their finding to the producer thereof and also to the department of animal industry, and the sale, shipment and delivery of all such milk, skim milk, or cream shall thereupon cease, and it shall be the duty of the department of animal industry to inspect the dairy and to require such changes and improvements as to the circumstances under which the milk, skim milk or cream is produced as shall be approved by the state department of health or by the local board of health making the complaint.

"It shall be unlawful for any person to ship, sell or deliver milk produced in any dairy to which the above notice has been given by the state department of health or by any local board of health until a certificate has been filed by the department of animal industry with the state department of health or local board of health, as the case may be, stating that such improvements have been made as were required by the department of health or by the local board of health, as the case may be, and as will make the production of milk in the said dairy safe and sanitary.

"Whoever ships, sells or delivers milk, skim milk, or cream in violation of the provisions of this act, shall be punished by a fine of \$100 for each offence."

The purpose of this substitute measure was obvious, to place in the hands of the bureau of animal industry the essential control of the milk producing industry in this state. Such a measure would absolutely thwart the purpose of the proposed milk legislation for which so vigorous a conflict has been made for a number of years and which, at last, seems on the verge of successful enactment.

Fortunately, on May 3, this new substitute measure met with the unqualified defeat which it deserved, and the labor clean milk bill was ordered to be engrossed by a vote of 149 to 68.

On May 6 the bill, having been returned to the Senate, was by that body amended with a clause exempting railroads and other common carriers from the provisions of the act. With this amendment it is again before the House for final consideration. It is earnestly to be hoped that the ultimate passage of this bill and its approval by the governor may at last establish reliable and adequate methods of milk inspection and control in Massachusetts.

OUT-PATIENT CLINICS FOR MENTAL DISEASE.

THE recently published bulletin (No. 8) of the Massachusetts State Board of Insanity for April, 1915, contains a striking statement of the number of persons who, during the first quarter of this year attended the new out-patient clinics which are being established throughout this state in connection with the various hospitals for the insane. During this period the total number of patients visiting this clinic at the Worcester State Hospital was 106, at the Taunton State Hospital, 99; at the Northampton State Hospital, 78; at the Danvers State Hospital, 91; at the Westborough State Hospital, 7; at the Psychopathic Department of the Boston State Hospital, 1054; at the Gardner State Hospital, 9; at the Monson State Hospital, 12; and at the Massachusetts School for Feeble-minded, 120; making a total of 1576 patients who availed themselves of this valuable opportunity for examination, observation, advice and treatment. The clinics were held on stated days, sometimes at the several hospitals, sometimes on circuit in the larger neighboring cities. The establishment and successful operation of these clinics as evidenced by the above data is not only a valuable service in the prophylaxis of mental disease and the interests of public health, but is of significance as indicating so strikingly the progressive change in popular attitude towards chronic disease of this type from that which formerly prevailed.

THE HEART MUSCLE IN PNEUMONIA.

PRELIMINARY announcement is made from the physiologic laboratory of the Harvard Medical School of an important piece of research on the heart muscle in pneumonia by Dr. L. H. Newburgh and Dr. W. T. Porter, as follows:—

"When a cannula is tied into the descendens or the circumflex branch of the left coronary artery of the dog, and the part of the ventricle nourished by the artery is cut out, the piece of ventricle will beat for hours if supplied with warm defibrinated blood under moderate pressure.

1. In our experiments the left ventricle from 10 normal dogs, perfused with normal blood, contracted an average of 181 minutes. The

area covered by the ten contraction curves (a measure of the work done by the ventricular segment) weighed 8.84 grams, an average of 0.88 grams.

2. Exactly similar preparations from 10 dogs that *had died* of pneumonia contracted an average of 200 minutes and their contraction areas weighed 8.50 grams, an average of 0.85 grams. These ventricles were perfused with normal blood.

It is evident that the heart muscle is not impaired in pneumonia.

3. Similar preparations from 10 normal dogs, in which the ventricular muscle was fed with blood from 10 dogs near death from pneumonia, contracted an average of 70 minutes, and their contraction areas weighed 3.40 grams, an average of 0.34 grams.

This demonstrates that pneumonia blood lowers the contractility of the heart muscle, though the ventricle is ready to beat normally as soon as its food is normal.

4. Seven ventricles from dogs about to die from pneumonia were perfused with pneumonic blood from the same pneumonic dogs. These ventricles beat an average of 185 minutes and the contraction areas weighed an average of 0.69 grams.

This demonstrates that the heart in pneumonia largely adjusts itself to its poisoned food supply.

L. H. NEWBURGH, M.D.,
W. T. PORTER, M.D."

MEDICAL NOTES.

AWARD OF JACKSONIAN AND TOMES PRIZES.—It is announced that the Royal College of Surgeons of England has awarded its Jacksonian prize to Mr. Jonathan Hutchinson for his essay on the pathology, diagnosis and treatment of trigeminal neuralgia, and the John Tomes prize to Mr. J. F. Colyer for his work on comparative dental anatomy and pathology.

TYPHUS FEVER AT NEW YORK.—Report from New York states that on May 1, a case of typhus fever was discovered aboard the Greek steamer *Christoforos* which arrived in New York Harbor that day from Marseilles. The patient, a Greek, has been isolated and the vessel has proceeded to its destination at Baltimore. The case had been discovered on board ship on April 20 and had been isolated since that time. It is stated that following the second Balkan War twenty cases of typhus fever, similarly originating in Marseilles, were thus brought to the port of New

York and were all safely detained at quarantine. On May 4, a second case of typhus was found on board the Cunard liner *Carpathian* sailing from Naples, Genoa and Piraeus. The patient was removed to the Swinburne Island Hospital for treatment. The steorage of the ship will be fumigated.

REPORT OF THE BOARD OF HEALTH OF THE TOWN OF MONTCLAIR, N. J.—The recently issued report of the board of health of the town of Montclair, covering the period from Jan. 1, 1914 to December 31, 1914, shows that the death rate for the year was the lowest in the history of the town, being 9.37 per 1,000 inhabitants. The birth rate, 18.8 per 1,000 inhabitants, is the lowest recorded for the town although it is the same rate as for the previous year. The marriage rate was 7.1 per 1,000 inhabitants.

RED CROSS SURGEONS SAIL FOR EUROPE.—On May 1 a number of American surgeons sailed for various parts of Europe for service in the Red Cross. Dr. Dunlap Pearce Penhallow of Boston, a major in the medical corps of the Massachusetts volunteer militia, has been granted six months' leave of absence and expects to be stationed in a hospital in France. Dr. Herbert H. Howard, whose appointment as staff physician in the Women's Relief Hospital at Paignton, England, has been noted in a previous issue of the JOURNAL, sailed in the same party.

Two surgeons are assigned to Serbia, Dr. Shadworth O. Beasley of San Francisco, graduate of Cooper Medical School and lately of the medical department of Leland Stanford, Jr., University and Dr. W. A. Jolley of Boulder, Col., graduate of Jefferson Medical College.

Dr. Walpole Brewer, of Tuskegee, Ala., graduate of Vanderbilt University Medical Department, has been assigned to Vienna.

On the steamship *Rotterdam*, bound for Rotterdam, were Dr. R. H. Crawford and four nurses, who are going to Germany.

Dr. Alden R. Hoover, head of the American Board Mission Hospital at Cesarea has been recalled from a furlough in this country, to begin relief work against typhus among the Turks. He expects to be engaged with the Turkish Army. The American Board Mission Hospital at Cesarea is a well equipped institution with eighty beds and had about 1,000 patients last year.

AFFILIATION OF COLUMBIA UNIVERSITY AND PRESBYTERIAN HOSPITAL.—Report from New York on May 4 states that plans are announced for a new medical school to be erected jointly by Columbia University and the Presbyterian Hospital, on the former site of the American League baseball grounds on the upper West Side, at an expense of \$10,000,000. Columbia will contribute \$7,500,000 to the project, it is

stated, and five years has been fixed as the limit of the period for raising the total sum. The Presbyterian Hospital purposes to erect a large hospital building, into which it will move from Madison avenue and Seventieth street. The College of Physicians and Surgeons will move to the new site from its buildings at Fifty-ninth street and Amsterdam avenue. The ability to raise the fund necessary for the purpose is the only undecided part of the plan.

HEALTH OF NEW YORK CITY BETTER THAN LAST YEAR.—The number of deaths reported last week from all causes was 1638, with a death rate of 14.72 per one thousand of the population, as against 1593 deaths and a rate of 14.89 during the corresponding week of 1914. There were 154 deaths reported from lobar pneumonia as against 119, 142 deaths from broncho-pneumonia as against 103, and 207 deaths from pulmonary tuberculosis as against 188. Chronic organic heart and kidney diseases showed a slight increase in mortality.

Viewed from the point of age grouping, the mortality among infants under 5 years of age was considerably increased, due to an increase in the number of deaths from measles and from broncho-pneumonia, while the mortality of the old was considerably below that of the corresponding week of 1914.

The death rate for the first eighteen weeks of 1915 was 14.72 per one thousand of the population as against a rate of 15.63 during the corresponding period of 1914, a decrease of .91 of a point.

SEVENTH PAN-AMERICAN MEDICAL CONGRESS.—In the issue of the JOURNAL for April 8 we commented editorially on the coming seventh Pan-American Congress of Medicine, which is to meet at San Francisco during the week of June 17 to 21 inclusive, and on its convenient relation to the annual meeting of the American Medical Association the following week. In last week's issue of the JOURNAL we also noted the official plans for excursions from various points to San Francisco for the meeting of the American Medical Association. The transportation committee of the Pan-American Congress has also arranged a series of railroad excursions, particularly two special trains which will leave New York, one on Friday, June 11, for the Pan-American Medical Congress and one on Wednesday, June 16, for the meeting of the American Medical Association. These excursions are specially recommended to physicians who desire to attend one or both of these important medical meetings. For additional information and bookings, application may be made to Dr. H. L. E. Johnson, 1821 Jefferson Place, N.W., Washington, D. C.

DEDICATION OF THE BRADY INSTITUTE.—The new Brady Urological Institute, which was established and endowed at the Johns Hopkins Hos-

pital by Mr. James Buchanan Brady of New York City, was formally dedicated with appropriate exercises on May 4. Addresses were made by Mr. Brady, by Dr. Hugh H. Young, by Dr. Simon Flexner and by Dr. Edward L. Keyes of New York City. The Institute was established and equipped at a cost of over \$250,000.

DR. STRONG IN SERBIA.—Report from Washington on April 30 states that Dr. Richard P. Strong, head of the American Red Cross Commission sent to Serbia to check the epidemic of typhus, having arrived at Serbia and studied its conditions, reports that he believes it possible to control the epidemic in a short time if proper facilities are furnished. He asks that at least 175 more physicians, medical inspectors and fourth-year students be sent, and states that there is a great lack of hospital supplies of all kinds. The report further states that an international board of health has been established at Nish, with Prince Alexander of Serbia as president and Sir Ralph Paget of England as vice-president. It consists of the heads of Serbian, French and English sanitary commissions and representatives of the Serbian military and civil medical departments. It is intended to make Surgeon-General Gorgas director of this board, should he accept the offer of the Rockefeller Foundation to become a member of its force in Serbia. The remainder of the American commission, which numbered ten sanitarians and bacteriologists, have reached Salonica, Greece, and will join Dr. Strong at Nish shortly. They sailed from New York, April 4.

EUGENIC LEGISLATION A MISNOMER.—In the latest issue of the *Journal of Heredity*, Dr. W. C. Rucker, assistant surgeon-general of the United States Public Health Service and secretary of the American Genetic Association, has called timely attention to the difference between the principles of eugenics and so-called eugenic laws which have been advocated in many of our legislatures. He states that many of them do not deal with eugenics, but preventive medicine, as, for instance, those requiring a health certificate before marriage, and further says that, "Neither the science of eugenics nor public sentiment is ready for legislation putting further restrictions on marriage, so far as those restrictions are strictly eugenic rather than hygienic in intent."

REPORT OF BELGIAN RELIEF WORK.—Report states that the Commission for Relief in Belgium has sent to Rotterdam, for further distribution up to April 3, food and clothing to the value of \$49,174,519. The amount of food supplies necessary to keep the Belgian population alive is constantly increasing. The amount required for the present month is as follows: wheat, or its equivalent, 60,000 tons; rice, 10,000 tons; peas and beans, 5000 tons; bacon and lard, 1200 tons; preserved meat, 1200 tons; preserved fish, 1200 tons; condensed milk, 300 tons.

REPORT OF THE ROCKEFELLER FOUNDATION ON CONDITIONS IN SERBIA.—A report of conditions in Serbia made for the Rockefeller Foundation, which led to the appointment of Dr. Richard P. Strong of the Harvard Medical School as leader of a corps of physicians and sanitary engineers to begin relief work in that unfortunate country, states that on March 10 probably from 25,000 to 30,000 persons were suffering from typhus, and this, with other epidemics, was sweeping the nation. Cholera was expected with the advent of the warm weather and no preparations had been made to suppress it. Probably 300,000 persons were destitute. Exhausted by three successive wars, the country has nothing to give away to its own unfortunates. The Serbian peasant in normal times is isolated and self-sustaining. The country is economically and socially unevolved and unorganized to a degree unknown in America. The one railroad through the country is mainly occupied for military purposes and other roads are out of repair and almost impassable. The normal population of Nish, the temporary capital, has been increased from 25,000 to 80,000, due chiefly to the influx of refugees. School buildings and churches are crowded with the sick and dying. The report further states:—

"The conditions which have been described as existing at Nish (where the government is fully cognizant of the situation and where the members of the government themselves are not only in danger, but are undoubtedly aware of their danger) call for emergency measures, and indicate that it would be vain to try now to do anything beyond controlling the epidemic."

EUROPEAN WAR NOTES.—On May 3 Dr. Clapham King of the American Red Cross reached New York aboard the steamship *Patria*, on which he has returned with thirteen nurses from a tour of hospital duty in Serbia and France. All were members of the original units sent at the outbreak of the war. Eight of the twelve nurses and five of the six physicians constituting these units became infected with typhus fever, and two of the surgeons, Drs. Donnelly and Magruder, died of the disease. Dr. King and his companions have returned to this country for convalescence. The remaining four nurses and one surgeon have been removed from Gievglia, Serbia, to Belgrade.

On April 26 it was reported from London that the Prince of Wales National Relief Fund reached a total of £5,000,000. The sums raised in the several states of this country for the St. George's Relief Fund are as follows:—

Massachusetts	\$9,480.44
Pennsylvania	4,830.41
New Jersey	4,032.10
Connecticut	3,800.00
New York	3,173.57
Illinois	3,139.89

Pacific coast	2,146.92
Michigan	1,503.85
Ohio	1,286.87
Rhode Island	1,150.45

On May 8 the totals of the principal American relief funds for the European War reached the following amounts:—

	N. Y.	N. E.
Belgian Fund	\$1,029,913.23	\$255,620.83
American Ambulance	387,467.89	
Committee of Mercy	153,375.26	
Red Cross Fund		133,440.13
Prince of Wales	119,649.23	
Jewish Fund		61,572.22
Serbian Fund	52,137.31	26,968.25
Polish Fund		45,242.39
British Imperial		26,373.78
Belgian Red Cross		13,721.00

NEW YORK STATE HOSPITAL FOR THE CARE OF CRIPPLED AND DEFORMED CHILDREN.—The recently published report of the New York State Hospital for the Care of Crippled and Deformed Children for the year ending Sept. 30, 1914, shows that a total of 107 patients have been treated during the year; 22 were admitted with hip-joint disease, 18 with Pott's disease and 35 for various forms of infantile paralysis and its deformities. Thirty-two patients were discharged during the year, leaving 75 under treatment. 47.66% having tuberculous disease. Of the number discharged, 14 were cured and 18 improved.

DECLINE IN THE BRITISH BIRTH RATE.—In previous issues of the JOURNAL we have commented from time to time on the rapidly declining birth rate of France, and the slowly declining birth rate in Germany. A recent item in the *Manchester Guardian* calls attention to the decreasing birth rate of Great Britain and the serious effect upon it which may be expected from the present European War. Recently published statistics show that in 1913 the excess of births over deaths in Britain was 450,000, whereas in 1914 it was 438,000. From the latter figure, however, should be subtracted the 268,000 British emigrants who left the islands during that year, so that the total increase of population was only 170,000. It is obvious that the figures for 1915 will be seriously affected by the losses of the war. Indeed, it would appear that both in France and in Britain a rapid acceleration of the decline in population must ensue unless some unexpected form of racial regeneration should arise.

BOSTON AND NEW ENGLAND.

INDUSTRIAL ACCIDENT BOARD.—Walter P. Bowers, M.D., of Clinton, formerly president of the Massachusetts Medical Society, has been named as a member of the advisory committee

of the Massachusetts Industrial Accident Board. The membership of that committee is as follows: Dr. Frederic J. Cotton, Boston; Dr. F. W. Anthony, Haverhill; Dr. Samuel Fletcher, Chicopee; Dr. Samuel H. Calderwood, Roxbury; Dr. Francis D. Donoghue, Boston; Dr. Frank E. Allard, Boston, Dr. Wm. H. Ruddick, South Boston; Dr. Walter P. Bowers, Clinton. Since the committee was originally formed, Dr. Francis D. Donoghue has been selected by the board as its medical advisor, and is now serving in that capacity under salary.

REPORT OF THE WORCESTER CITY HOSPITAL.—The forty-fourth annual report of the trustees of the Worcester City Hospital publishes in thorough statistical arrangement the record of the work of that institution for the year ended Nov. 30, 1914.

“Five thousand, six hundred and fifteen (5615) bed patients were given 97,475 days’ treatment at an expense of \$158,005.82.

“Twenty-nine thousand, five hundred and forty-two (29,542) treatments were given in the out-patient department at an expense of \$8,579.60, or \$.29 per treatment.

“One thousand and seven (1007) were treated in the accident room at an expense of \$1,732.98, or \$1.721 per patient.

“There was a total of 97,475 days’ treatment in the hospital proper, 29,542 treatments in the out-patient department and 1007 treatments in the accident room at a total expenditure of \$170,820.40.

“The average expenditure for each bed occupied continuously throughout the year was \$591.67, as against \$577.89 in 1913. This does not include the expenses of the out-patient department, or of the accident room, nor does it include interest on investment or depreciation of plant.”

BOSTON VITAL STATISTICS.—The recently published report of the Boston Registry Department for the year 1914 shows that during the past year the births exceeded the deaths in this city by nearly 75%. The number of births recorded was 19,672, the number of deaths was 11,830, exclusive of 786 citizens of Boston who died in other cities. There were 8527 marriages of residents and 1687 of non-residents.

COLLECTION OF GUNSHOT WOUNDS FOR THE WARREN MUSEUM.—It is announced that Dr. Du Bouchet, surgeon-in-chief of the American Ambulance Hospital in Paris, has offered to present to the Warren Museum at the Harvard Medical School a collection of specimens obtained from operations and autopsies at the hospital during the war, illustrating the effect of modern projectiles on the tissues of the body. This collection, representing a wide variety of modern gunshot wounds, is expected to be the most complete in this country, with the exception of that

of the National Museum in Washington. In a recent letter from the American Ambulance Hospital, where he is at present serving with the Harvard Unit, Dr. Robert B. Greenough of Boston writes as follows of the character of the wounds there observed:—

“We are treating chiefly perforating gunshot wounds with compound fractures. Most of the wounds are infected when the bullet enters. The soil of the trenches is filled with all kinds of pathogenic organisms, including gas bacilli of several different strains. It is rare for any wound to heal by first intention. On the other hand, very severe infections are not numerous, and we have only three or four cases seriously ill today.”

REPORT OF THE MILK AND BABY HYGIENE ASSOCIATION.—The recently published report of the Milk and Baby Hygiene Association of Boston gives the following statistics: number of stations, 12; number of nurses, 14; number of well-baby clinics held, 665; attendance at clinics, 19,578; total number of babies cared for, 4097; number of deaths, 83; breast fed babies, 2249; partly breast fed, 818; artificially fed, 1030; visits made in the homes by the nurses, 50,275; average attendance at clinics, 29. The association has no endowment and is dependent upon voluntary contributions. In 1914 the work cost \$23,218 and during the present year \$30,000 will be required. That the work of this association is important and far-reaching cannot be questioned. It is to be hoped that funds will be forthcoming this present year to meet the expectations of the members of this worthy organization.

DRUG USERS IN INSANE HOSPITALS.—One of the inevitable results of the enactment of the Federal drug law has been in the crowding of hospitals with patients addicted to the use of drugs who, no longer able to obtain a supply of them, become mentally deranged and are committed to our state institutions. At Tewksbury there is an unusually large number of patients in whom deferred mental diseases developed when they were forced to give up the use of narcotics. The Norfolk State Hospital has a long waiting list of drug users. It is reported that proposals have been put forward for the establishment of a branch hospital at Springfield to take care of this increase. Many of the patients are anxious to escape from the dangers of their condition, but the majority are too firmly fixed in the habit to care for anything but its continuance. Report from Illinois states that since the enforcement of the drug law in that state went into effect, more than three hundred persons have been sent to insane hospitals, because they cannot get the drug they crave.

MEASLES IN WALTHAM.—Report from Waltham, Mass., on May 1, states that twenty-four cases of measles have recently been reported in

at city. Careful examination will be made of all pupils returning to school after vacation, to prevent a spread of the epidemic.

HOSPITAL BEQUESTS.—The will of the late Miss Helen Collamore of Boston, who died in this city on April 17, was filed in the Suffolk probate office on April 28. It contains numerous charitable bequests, including one of \$200,000 to the Massachusetts Homeopathic Hospital for the erection of a new building, to be known as the Collamore Building. A further sum of \$30,000 is also given to this hospital for the maintenance of three perpetual free beds. Bequests of \$5,000 each are made to the Children's Hospital, Boston Instructive District Nursing Association, to the Perkins Institution for the Blind, to the Industrial School for Crippled and Deformed Children, and to the Trustees of Boston University for the benefit of the Homeopathic School of Medicine of that university. The Massachusetts Homeopathic Hospital is also named as one of the residuary legatees.

FIRST CONFERENCE OF MASSACHUSETTS BOARDS OF HEALTH.—The first conference between the Massachusetts Association of Boards of Health and the State Department of Health was held in Boston on April 29. Seventy-five cities and towns of Massachusetts were represented. The speakers at the forenoon conference were Governor Walsh, Commissioner Allan J. McLaughlin, Dr. Charles W. Eliot, Professor Irving Fisher, Miss Ella P. Crandall, executive secretary of the National Organization of Public Health Nursing, and Professor William T. Sedgwick, president of the American Public Health Association.

Dr. McLaughlin spoke particularly of the desirability of better organization for health education, saying in part:—

"I believe that the time has arrived for a state-wide organization of all those interested in public health education. I believe that such an organization should include all health officers and every agency engaged in public health nursing or social service, or the teaching of hygiene in this Commonwealth. Organization is necessary to secure coöperation, to prevent duplication, and to get the full value of the efforts made, and the money expended for public health education."

The speakers of the afternoon, and their subjects, were: "The Control of Communicable Diseases," Dr. Eugene R. Kelley, State Department of Health; "The Relationship Between the State and Local Boards of Health," Dr. Lyman A. Jones, district health officer, Berkshire district; "The Health of the Farmer," Dr. John S. Hitchcock, district health officer, Connecticut Valley district; "The Vacation Health Problem," Dr. Adam S. MacKnight, district health officer, southeastern district; "The Continuing Problem of Vaccination," Dr. Samuel H. Dur-

gin, former chairman of the Boston Board of Health; "The Control of Cancer," Dr. Edward Reynolds, vice-president American Society for the Control of Cancer; "Some Problems of the Health Officer of a Small City," Dr. Francis G. Curtis, health officer, Newton; "Infant Mortality from the Standpoint of the State," Dr. William Hall Coon, district health officer, northeastern district.

Dr. Durgin, in his address on the continuing problem of vaccination, stated that the annual request made to the legislature to repeal the vaccination laws is made by a few citizens of the Commonwealth whose sincerity is unquestioned, but whose arguments, that vaccination produces other diseases in the person vaccinated, should be met with more scientific evidence. He, therefore, presented for the consideration of the association a resolution to this effect, which was adopted:—

"*Resolved*, That in the opinion of the Massachusetts Boards of Health, legislation should be secured by which all cases of supposed illness or injury caused by vaccination shall be forthwith reported to the state department and immediately investigated and recorded, and continued for a sufficient length of time to secure facts proving the truth or falsity of the charges."

DR. CREEL AS BOSTON HEALTH COMMISSIONER.—It was announced on May 3 that Dr. Richard H. Creel, of the United States Public Health Service, has accepted the offer of an appointment as health commissioner of the city of Boston and has received an indefinite leave of absence from Washington for this purpose. This appointment was made in accordance with the recent action of the Boston City Council, abolishing the present board of health and substituting therefor a health commissioner and a board of deputy commissioners. This reorganization was discussed editorially in the issue of the JOURNAL for Feb. 11. Probably an important element in determining Dr. Creel's decision to accept this post and the willingness of the Public Health Service that he should do so is the recent transfer of the Boston Quarantine Service from local to federal control. This transfer will officially take place on June 1 and on the same date Dr. Creel will come to Boston to assume his new duties. One of the first and most important of these will be the appointment of the deputy commissioners to have charge of the seven new divisions of the department. The ordinance passed by the city council provides that:—

"In appointing a deputy commissioner the health commissioner shall certify under oath that he is a person of recognized standing in his profession or occupation; that in the commissioner's opinion he is an expert in the work which will devolve upon him; that he is a person especially fitted by education, training or experience to perform the duties of the office, and

that the appointment is made solely in the interests of the city, such certificate to be filed with the city clerk and to be open for public inspection. The salaries of the deputy commissioners shall be fixed by the health commissioner, subject to the approval of the mayor."

Dr. Creel's acceptance of this important post is a matter for congratulation to the city of Boston, since his reputation in the public health service and the character of the work in which he has recently been engaged at New Orleans amply justify his reputation as an expert in matters of public health. From him is to be expected an efficient and constructive administration of the functions of the department of health, in a large city and seaport, without political fear or favor.

MASSACHUSETTS DENTAL SOCIETY.—The fifty-first annual meeting of the Massachusetts Dental Society was held in Boston on May 5, 6, and 7, under the presidency of Dr. Henry H. Piper of Somerville, who delivered his annual address at the afternoon session on May 5, followed by Dr. Eugene H. Smith. At the evening session on May 5 there was an address by Dr. Howard R. Raper of Indianapolis on "The Influence of Radiography on Dentistry." At the afternoon session on May 6, there were papers by Dr. William R. Pond of Rutland, Vt., and by Dr. Arthur H. Merritt of New York City; and at the evening session by Dr. Charles F. Painter of Boston, who spoke on "The Co-Relation of Advancement in Dental and Medical Education in Their Relation to the Public," and by Dr. Charles F. Ash of New York City. The morning session of May 7 was held at the Harvard Dental School, and at the final session that afternoon there was an address by Dr. Henry W. Gillett of New York City, followed by the installation of the following new officers:—

President, Dr. Charles M. Proctor, Boston; first vice-president, Dr. Frank T. Taylor, Boston; second vice-president, Dr. H. H. Cleaveland, Springfield; secretary, Dr. A. H. St. C. Chase, Boston; assistant secretary, Dr. Albert W. Day, Worcester; treasurer, Dr. Joseph T. Paul, Boston; editor, Dr. C. Edson Abbott, Franklin.

Massachusetts Medical Society.

ANNUAL MEETING.

THE annual meeting of the Massachusetts Medical Society, in observance of its 134th anniversary, will be held in Boston on Tuesday and Wednesday, June 8 and 9, 1915. All the exercises of the anniversary will be held at the Copley-Plaza Hotel, Copley Square, except the combined meeting of the sections on surgery on

Wednesday afternoon, which will be held at the Boston City Hospital.

A *Bureau of General Information* will be maintained by the committee of arrangements during Tuesday and Wednesday in the lobby of the Copley-Plaza Hotel, the headquarters of the society during the annual meeting.

The Annual Dinner and all General and Section Meetings (with the exception of the combined meeting of the Sections of Medicine and Surgery on Wednesday afternoon) will be held as in 1913 and 1914 at the Copley-Plaza Hotel. During both days of the meeting the facilities of the hotel will be at the disposal of the members of the society, and parking space for automobiles, with supervision, will be provided. By arrangement with the management, rooms may be secured at a reduced rate by fellows of the society desiring to spend Tuesday or Wednesday night in Boston.

Clinics and Demonstrations will be held at the various hospitals on Tuesday morning and will be related as far as possible to subjects to be discussed during the meeting.

The Boston Medical Library, 8 The Fenway, will be open for the inspection and use of the fellows during the days of the meetings.

The Harvard Medical School, 240 Longwood Avenue, and the Tufts College Medical School, 416 Huntington Avenue, will be open for inspection by the fellows both Tuesday and Wednesday.

A more detailed program of the exercises on each day of the meeting will be printed in the issue of the JOURNAL for June 3. The annual meeting of the council will be held at the Copley-Plaza Hotel on June 8.

DORCHESTER MEDICAL SOCIETY.

AT the annual meeting of the Dorchester Medical Society, held at the Hotel Brunswick on Apr. 21, 1915, the following officers were elected: President, J. T. Kendrick, M.D.; vice-president, W. E. Barnes, M.D.; secretary-treasurer, F. X. Corr, M.D.; advisory committee, M. T. Thurber, M.D., H. F. R. Watts, M.D., R. M. Merrick, M.D.

Obituary.

FRIEDRICH LOEFFLER, M.D.

DR. FRIEDRICH LOEFFLER, who died recently in Berlin, was born at Frankfort-on-the-Oder in 1852. He received his education at the Universities of Würzburg and Berlin and, as early as 1884, published the results of his first investiga-

ions on the bacillus of diphtheria. Klebs in 1883 had described a bacillus which he observed in diphtheritic membranes, but Loeffler was the first to cultivate the organism in artificial media and to reproduce the disease in animals by inoculation. He was thus able to obtain in guinea-pigs, rabbits, calves and pigeons a purulent conjunctivitis and tracheal lesions from which he recovered the organism in pure culture, thereby fulfilling Koch's laws and demonstrating the etiology of the disease.

In conjunction with his researches in diphtheria, Loeffler made a careful study of the use of aniline dyes in the staining of bacteria and became one of the great pioneers in bacteriologic method. The methylene blue stain which he devised is universally familiar to laboratory workers, and is particularly adapted to the demonstration of the metachromatic granules in diphtheria bacilli.

In 1888 Loeffler was appointed professor and director of the hygiene institute at the University of Greifswald and later was called to Berlin. In 1895 he became a member of the Imperial Institute and in conjunction with Koch and Haffky pursued important investigations relative to disinfection by means of steam. He also studied and differentiated the so-called red murrain of pigs, which thitherto had been confounded with swine fever.

In its obituary notice of him the *London Lancet* says that "Professor Loeffler as a pioneer will be placed among the foremost of German scientists. The results of his researches, both directly and indirectly, as leading up to the work of other observers (as, for instance, the introduction of the antitoxin treatment of diphtheria), have proved of the highest value to mankind, whilst the manner in which his investigations were conducted has formed a firm and constructive basis for other bacteriologists."

EMORY LINCOLN WHITE, M.D.

DR. EMORY LINCOLN WHITE died suddenly of heart disease at his home in Somerville, Mass., on April 29, 1915, aged 66 years.

He was born in Norton, May 15, 1848, and was educated in private schools and in the Harvard Medical School, from which he was graduated in 1872.

Dr. White joined the Massachusetts Medical Society in that year and settled in practice in Somerville, where he was prominent until his death. He was at one time a member of the Somerville Board of Health and also city physician; he was medical examiner for three life insurance companies and was a member of John Abbot Lodge of Masons. He is survived by his widow and one son.

Miscellany.

A STATE MEDICAL EXAMINATION IN THE SEVENTEENTH CENTURY.

THE following extract from Mr. John Fyvie's "Story of the Borgias" (p. 252) seems of interest as an account of a state medical examination three hundred years ago:—

"Ferrara, like Padua and Bologna, was celebrated for its school of medicine, but some notion of the qualifications of its practitioners may be obtained from the perusal of a medical diploma granted there as late as 1642, which the historian Citadella discovered in the archives of Ferrara, and which William Gilbert saw, engraved on parchment, in the library of that city. A certain Generoso Marini, wishing to practise as an authorized physician, applied to the judges for a diploma, and duly presented himself for their examination. What happened is thus set forth in the document itself, which is duly signed by 'Joannes Cajetanus Modoni, Index sapientium civitatis Ferrari,' and 'Franciscus Altramari, Cancellarius.'

"'Having publicly examined and approved the science and knowledge of medicine of Signor Generoso Marini, and his possession of the wonderful secret called Orvietano, which he exhibited on the stage built in the centre of the Piazza of this our city of Ferrara, in presence of its entire population (so remarkable for their civilization and learning) and in presence of many foreigners and other classes of people, we hereby certify that, in our presence also, as well as that of the city authorities, he took several living toads, not those of his own providing, which might have given suspicion of deception on his part, but from a great number of toads which had been caught in fields of the locality by persons who were strangers to him, and which were only handed to him at the moment of making the experiment. An officer of the court then selected from the number of toads collected five of the largest, which the said Generoso Marini placed on a bench before him, and, in presence of all the assembled spectators, he cut all the said toads in half with a large knife. Then, taking a drinking cup, he took in each hand one half of a dead toad and squeezed from it all the fluids and juices it contained into the cup; and the same he did with the remainder. After mixing the contents together he swallowed the whole; and then, placing the cup on the bench, he advanced to the edge of the stage, where for some minutes he remained stationary. Then he became pale as death, and his limbs trembled, and his body began to swell in a frightful manner, and all the spectators began to believe that he would never recover from the poison he had swallowed, and that his death was certain. Suddenly, taking from a jar by his side some of his celebrated Orvietano, he placed a portion of it in

his mouth and swallowed it. Instantly the effect of the wonderful medicine was to make him vomit the poison he had taken; and he stood before the spectators in the full enjoyment of his health. The Populace applauded him highly for the indisputable proof he had given of his great talent. And he then invited many of the most learned of those present to accompany him to his house, and he there showed them his dispensary, as well as his collection of many antidotes, and among them a powder made from little vipers, a powerful remedy in curing every sort of fever, as he had proved by different experiments he made on people of quality and virtue, all of whom he had cured of the fevers under which they were suffering. He also exhibited a wonderful balsam he had invented, which cured with great rapidity all bruises and wounds, as well as burns and scalds of every description. The said Generoso Marini had also great skill in drawing teeth, in which he exhibited an extraordinary dexterity. But that which most distinguished him was his wonderful power in restoring many persons to health who were suffering from divers incurable diseases. In consequence of the rare talent exhibited by Signor Generoso Marini, and as a proof of our love and respect for his wisdom, we have resolved by the authority placed in our hands publicly to reward him with our diploma, so that he may be universally recognized, applauded, and respected. In witness whereof we here set our hands and the public seal of the municipality of Ferrara.'"

SANITARY IMPROVEMENT IN OYSTERS.

ON May 2 the United States Department of Agriculture issued the following statement relative to recent improvement in the sanitation of oysters:—

"Oysters now being shipped from northern oyster beds in interstate commerce are safer than ever before, being as safe a food as milk. This condition has been brought about through the sanitary surveys of oyster beds conducted co-operatively by the Public Health Service and the Department of Agriculture, by the hearty co-operation of the state shellfish authorities with the federal authorities, and finally by a realization on the part of the oyster men that they themselves in the interests of their industry must prevent the taking of oysters from suspected or polluted beds.

"As a result of the survey of oyster beds by the Federal authorities, in coöperation with state authorities, every oyster bed polluted by sewage or other causes, from Virginia to Massa-

chusetts, the northern oyster-producing region, has been closed and many beds placed under such restrictions as to the taking and handling of oysters as to make it practically impossible for oysters at all subject to pollution to be taken and shipped. All the oyster beds in the states mentioned have been so charted that when certain beds are closed, owing to pollution or other causes, it is easy to establish from these maps the definite area covered by these beds.

"In certain cases these restrictions have compelled the transplanting of oysters for a time long enough to make them absolutely free from any danger of pollution, or have limited the taking of oysters to the seasons when the beds are in absolutely clean condition. In this work all the states concerned have coöperated most actively and, what is regarded as of great importance by the federal authorities, the oyster men themselves are seeing to it that no oysters from the prohibited sources enter the local markets or are shipped inland."

MEMORIAL RESOLUTIONS.

HENRY CUTLER BALDWIN, M.D.

At a meeting of the Boston Society of Psychiatry and Neurology, held April 15, 1915, the following memorial was read:—

Dr. Henry Cutler Baldwin died very suddenly on the afternoon of February 28, 1915. He had engaged in his professional work on the morning of that day, and his death was most unexpected and a shock to his family and many friends, although it would seem that he himself must have recognized symptoms of danger for nearly two years.

Dr. Baldwin, the son of Rollin Mallory and Maria Louise (Colton) Baldwin, was born in Boston, October 27, 1859. He was graduated from Harvard College in 1880, and from the Harvard Medical School in 1884. He was a surgical house pupil in the Massachusetts General Hospital in 1883-1885, and after his hospital service received an appointment as assistant physician of the McLean Hospital, which position he held for nearly a year, resigning in December, 1885, to become private physician to a gentleman in a tour around the world, which was broadening in its influence and furnished many pleasant memories in after-life. Immediately after his return he again went abroad for medical study, and in the fall of 1887 began in Boston the practice of medicine, in which he was eminently successful. In college and in the professional school he took high rank and gave promise of the success he in later life attained

in his hospital work, both as a pupil and a physician, he was faithful, thorough, painstaking, and spared no time or strength in doing his full duty.

From his service in the Massachusetts General Hospital one might have predicted for him the career of a surgeon, and to this he was early inclined, but his experience at the McLean Hospital and his appointment as assistant in neurology in the out-patient department of the Massachusetts General Hospital turned him to the field of neurology and psychiatry, in which his practice chiefly lay. He was exceedingly successful in the treatment of difficult cases of long duration that required infinite patience, persistence and ingenuity in a process of reeducation. He was a forceful, self-reliant man and had great executive ability, which enabled him to manage extremely difficult cases. He was firmly convinced that the physician should be in control and declined the care of those who would not follow directions. He gained the confidence of his patients by absolute devotion to them, never hesitating to do anything that promised for their advantage, even though the service might seem to be more within the province of the nurse than the physician. He was always ready by night and day, and for a long time it seemed that he had the physique to meet all demands upon him. As an expert witness, in which capacity he frequently served, he showed the same thorough and painstaking preparation that was manifested in all his work.

He was a member of many medical societies, but took especial interest in the Boston Society of Psychiatry and Neurology, of which he was secretary from 1898 to 1904, and president in 1909. He often made brief communications and showed cases, but rarely read a formal paper. As chairman of the board of trustees he formulated a plan for the development of the Boston Insane Hospital, of which he officially saw only the beginning, but which has since been more fully realized. This plan was presented by him in a paper read in January, 1900, before the Boston Society for Medical Improvement.

A man of rare personal qualities, exceptional professional ability, absolute common sense, forcefulness and tenacity of purpose, he leaves a place in the community which it will be difficult to fill.

Resolved, That the Boston Society of Psychiatry and Neurology place on record its appreciation of the character and attainments of Dr. Baldwin and the deep sense of the loss it has sustained in his death.

Resolved, That a copy of these resolutions be sent to Mrs. Baldwin and his brother, be spread on the records of the Society, and printed in the BOSTON MEDICAL AND SURGICAL JOURNAL.

PHILIP COOMBS KNAPP, M.D.,
GEORGE T. TUTTLE, M.D.

Correspondence.

THE HARVARD UNIT AT THE AMERICAN AMBULANCE IN PARIS.

AMERICAN AMBULANCE HOSPITAL.

NEUILLY, PARIS, FRANCE, April 19, 1915.

Mr. Editor: The Harvard Unit assumed its responsibilities at the American Ambulance on April 1. There are four surgical services in the hospital, one in charge of Dr. C. W. Du Bonchet, surgeon-in-chief, one in charge of Dr. Joseph A. Blake, a third in charge of Dr. Mignot, and the fourth or so-called University Service, administered by the Harvard Unit, during April, May and June, with Dr. Harvey Cushing the ranking member in charge of the neurological cases, and Dr. R. B. Greenough the active chief surgeon.

There are also special departments, eye, nose, throat and ear, x-ray, dental, massage, and a genito-urinary department in process of organization.

The hospital is housed in the large Lycée Pasteur recently built and never used before; it was taken over by the Government and assigned to the American Ambulance. It has been skilfully adapted to its new use and serves its purpose admirably. The building has three main floors divided into wards arranged about a central court and a wing devoted to offices, supply rooms and the special departments. On the top floor of this wing are the very adequately appointed operating room, sterilizing room, laboratory and office of the Harvard Unit.

The hospital contains about 500 beds with a possible increase beyond this number. The University Service has charge of 168 of these beds, practically the entire third floor of the building.

Everyone connected with the hospital has shown the greatest courtesy to the Unit and its needs have been supplied in a most cordial spirit of co-operation and in a most generous manner. For the first two weeks the service was comparatively light which enabled the chiefs to organize the work and establish an adequate record system. The two residents and the three house officers were thus able to make a careful study of the cases. Each house officer has charge of six wards of nine or ten beds each and both residents and house officers live at the hospital. Two stenographers, speaking both French and English, and half the time of a photographer, are at the disposal of the Unit.

An idea of the activity of the service may be gained from the fact that during the first two weeks the Harvard Unit discharged 51 old and admitted 65 new patients, the largest number received on any one day being 23. The cases are sent to well-equipped convalescent homes as soon as their condition will allow. This provision makes possible a constantly active service, almost as active in fact as that of any of the large general hospitals in Boston.

Even the very fresh wounds, of which the hospital is now receiving many, are most of them septic; some of them seriously so. There have been several cases of infection with gas-producing anaerobic bacteria but none of them have demanded radical surgery. We have known of no cases of tetanus occurring in the hospital which may well be attributed to the routine prophylactic doses of anti-tetanic serum given at the front.

The operations on the infected cases have consisted in the establishment of proper drainage and the removal of foreign bodies and bone fragments. A musculo-spiral nerve dissection and freeing, and a facial nerve suture in the canal by Dr. Cushing, a plastic of the face by Dr. Greenough, and a transfusion on Dr. Blake's service by Dr. Vincent have been examples of clean surgery. There have been a surprisingly large number of peripheral nerve lesions and several interesting cranial injuries. Many of the

cases have also needed orthopaedic treatment in the way of apparatus, to correct deformity and retain proper alignment in fractures. A very large number of compound comminuted and infected fractures of the long bones present special problems.

Dr. Strong's departure for Serbia has robbed the Unit of one of its most important members. He was able to plan the bacteriological and laboratory lines of investigation and these lines are being closely followed by Dr. Rogers and Dr. Benet.

The service bids fair to be a most interesting and valuable one and the hospital seems to welcome the assistance of these groups of American surgeons.

Very truly yours,

ROBERT B. OSGOOD, M.D.

CORSETS, PTOSIS, AND SACROILIAC STRAIN.

ALLSTON, MASS., May 1, 1915.

Mr. Editor: I have read with much interest the contribution of Dr. R. M. Green in your number of April 22, on the relation of ptosis and sacroiliac strain to pelvic conditions, and the value of proper corseting in their treatment. The article is certainly to be commended for calling attention to a most important, yet greatly neglected, subject. On the basis of experience with similar cases, as seen in adult orthopedic clinics, I cannot, however, wholly agree with some of the ideas expressed.

In the first place, the division of all corsets into two groups, those which lace in front and those which lace behind,* as representing good and bad types, respectively, does not seem to me to be a pertinent classification, nor can I agree that the lace-back corsets "are all bad." The fundamental difference does not lie in the position of the lacing, but in what the corset accomplishes. Certainly it is just as true that there are lace-front corsets which are bad as it is true that lace-back corsets may be found which are to be recommended. It is my belief that many, if not the majority of, orthopedic surgeons in Boston are today using lace-back corsets.

The requisites of a good corset do not depend so much on its style as on its function. From this viewpoint a good corset is one which, granted it is of suitable size, has a snug-fitting bottom, with a loose top and sides, and a relatively straight, firm back, furnishing a definite lifting power and assisting in the correction of faulty posture. It should be so constructed, moreover, that it may be readily altered, as practically no ready-made corset is wholly good without a few careful alterations.

A corset which meets these requirements will not only support the viscera, but do this without cramping, for it is just as important that ample space be allowed in the upper part of the corset for the accommodation of the lax abdominal wall, as it is that the corset should be tight below to elevate and support this laxity. In other words, the corset must be designed to transfer the superfluous flesh and the sagging abdominal contents from below to above, rather than to squeeze them directly backward against the spine. The lace-back corset will do this as well as the face-front, if it is properly fitted at the bottom, darts being taken in the lower edge when necessary. While the application of a corset in recumbency is ideal, and, in fact, is the best way for a lace-front corset to be applied, this method is not always practicable, and can be avoided with a lace-back type. With the latter, the patient, standing, buckles on the unlaced corset, pulls it well down, and then lifts the abdomen inside with one hand, while the

*It should be noted that in the article in question the exact phrase is "those that lace *only* behind." This seems intended to convey a somewhat different idea from that assumed by our correspondent.—EDITOR.]

other tightens the bottom or pelvic lacing, so holding the position gained.

It is my experience, however (in this the orthopedist may of course differ from the gynecologist), to observe very few cases of visceroptosis in which all the symptoms could be accounted for by this condition *per se*, or in which, indeed, the ptosis did not appear to be but a contributory factor. To one familiar with the statics of the human body, it does not seem probable for a visceroptosis of any degree to exist without materially interfering with posture, and being productive of the muscle strain attendant to improper balance. Careful examination of patients with ptosis usually reveals other postural defects, notably an increased lordosis of the lumbar spine, which is either the primary defect, or is secondarily produced by an attempt on the part of the individual to alleviate the strain on the muscles of the back, which has been caused by the added anterior weight of the pendulous abdomen. It is this strain of the muscles and ligaments of the low lumbar region from faulty posture, often attended by arthritic changes from long continued irritation, which is responsible for a large measure of the discomfort and referred pain in these cases. The relief of the condition depends fully as much, then, on resting the muscles and ligaments of the low back, and in supporting and straightening the lumbar spine, as in elevating the abdomen. Any corset which will relieve the ptosis necessarily shifts the center of gravity of the body toward the spine, and so relieves the back strain, but the necessity of having, in addition, a straight firm support, against which the lumbar spine may be drawn and held, is obvious.

In regard to flat-foot and sacroiliac strain, as mentioned in this connection in Dr. Green's article, while both are productive of backache, and may, of course, accompany visceroptosis, the static results of the former should be considered a distinct entity, while the latter is rarely seen in pure faulty posture, the strain and pain in these cases being largely muscular, and located in the lumbo-sacral region.

Methods of treatment necessarily vary with the experience of different men, and equally good results are often obtained by quite dissimilar procedures. It is rather in defence of the ideas expressed above, than in criticism of those of the article under discussion, that the undersigned has taken the liberty of submitting these remarks.

Very truly yours,

EBEN W. FISKE, M.D.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING MAY 1, 1915.

CONTRIBUTIONS.

Dr. N. B. Murphy, Bangor, Mich.....	\$ 25.00
Col. W. H. Arthur, M.C., U.S.A., San Francisco, Cal.....	10.00
Dr. Augustus A. Eshner, Philadelphia, Pa....	10.00
Dr. S. W. Goddard, Brockton, Mass.....	10.00
Dr. Albert M. Judd, Brooklyn, N. Y.....	5.00
Dr. Calvin F. Barber, Brooklyn, N. Y.....	10.00
The Mount Vernon Medical Society, Mount Vernon, N. Y.....	10.00

Receipts for the week ending May 1.....\$ 80.00
Previously reported receipts.....6505.5

Total receipts.....\$6585.5

Disbursements for the week ending May 1:
35 standard boxes of food @ \$2.30..\$ 80.50

Previously reported disbursements:

1625 standard boxes of food @ \$2.20.. 3575.00
 1274 standard boxes of food @ \$2.30.. 2930.20

Total disbursements.....\$6585.70

Deficit \$0.20

F. F. SIMPSON, M.D., *Treasurer*,
 7048 Jenkins Arcade Bldg.,
 Pittsburg, Pa.

Dr. J. Riddle Goffe, of New York, says that in a letter just received from Dr. Jacobs, of Brussels, the latter summarizes the situation of our Belgian Colleagues as follows:

1. Many doctors were killed, consequently the widows and orphans deprived of everything, are without a home, without means, with nothing left.

2. All country doctors or those living in small towns are ruined by loss of every possession they had.

3. Doctors in large cities are ruined by commandeering and war-taxes.

4. The largest part of the Belgian population has become the prey of infectious diseases, epidemics, with a large infant mortality.

5. Ruined civilian populations cannot pay for medical advice, consequently several physicians are compelled to work for nothing, others are obliged to undertake any labor for gain as a means of livelihood, with results that are terrible for the population.

The opportunity is here created for the medical profession of the world to show the brotherly feeling which exists among them, and they can do this by helping us with the necessary funds.

UNITED STATES CIVIL SERVICE EXAMINATION.

JUNE 8, 1915.

The United States Civil Service Commission announces an open competitive examination for physiologist, for men only. From the register of eligibles resulting from the examination certification will be made to fill a vacancy in this position in the Dairy Division, Bureau of Animal Industry, Department of Agriculture, Washington, D. C., at a salary ranging from \$2500 to \$3000 a year, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The duties of this position will be to take charge of investigations in the secretion of milk and will involve a general fundamental study of the factors controlling the secretion of milk.

An M.D. degree or a Ph.D. degree in physiological work, and at least four years' subsequent experience in the investigation of physiological problems, are prerequisites for consideration for this position.

Applicants must not have reached their fiftieth birthday on the date of the examination. Under an act of Congress applicants for this position must have been actually domiciled in the State or Territory in which they reside for at least one year previous to the date of the examination. A ten-cent internal revenue stamp must be attached to the county officer's certificate in Form 304. This examination is open to all men who are citizens of the United States and who meet the requirements.

Persons who meet the requirements and desire this examination should at once apply for Forms 304 and 095, stating the title of the examination for which the forms are desired, to the United States Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Post Office,

Boston, Mass.; Philadelphia, Pa.; Atlanta, Ga.; Cincinnati, Ohio; Chicago, Ill.; St. Paul, Minn.; Seattle, Wash.; San Francisco, Cal.; Customhouse, New York, N. Y.; New Orleans, La.; Honolulu, Hawaii; Old Customhouse, St. Louis, Mo.; or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R. Applications should be properly executed, excluding the medical certificate, and must be filed with the Commission at Washington, with the material required, prior to the hour of closing business on June 8, 1915.

EXAMINATION OF CANDIDATES FOR ASSISTANT SURGEON.

UNITED STATES PUBLIC HEALTH SERVICE.

Boards of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, 3 "B" Street, S.E., Washington, D. C., and at the Marine Hospitals of Boston, Mass.; New York, N. Y.; Chicago, Ill.; St. Louis, Mo.; Louisville, Ky.; New Orleans, La.; and San Francisco, Cal., on Monday, June 21, 1915, at 10 o'clock A.M., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service, when applications for examination at these stations are received in the Bureau.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Service in hospitals for the insane or experience in the detection of mental diseases will be considered and credit given in the examination. Candidates must have had one year's hospital experience or two years' professional work. Candidates must be not less than 5 feet, 1 inches, nor more than 6 feet, 2 inches, in height, with relatively corresponding weights.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate and that they will serve wherever assigned to duty.

The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists of examination in the various branches of medicine, surgery, and hygiene. The oral examination includes subjects of preliminary education, history, literature, and natural sciences.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order. They will receive early appointments. After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon.

Assistant surgeons receive \$2000, passed assistant surgeons \$2400, surgeons \$3000, senior surgeons \$3500, and assistant surgeon generals \$4000 a year. When quarters are not provided, commutation at the rate of \$30, \$40, and \$50 a month, according to the grade, is allowed. All grades receive longevity pay, 10 per cent. in addition to the regular salary for every five years up to 40 per cent. after twenty years' service. The tenure of office is permanent. Officers travelling under orders are allowed actual expenses.

For invitation to appear before the board of examiners, address "Surgeon-General, Public Health Service, Washington, D. C."

UNITED STATES NAVY MEDICAL CORPS.

The surgeon general of the United States Navy has recently issued a revised circular for the information

of persons desiring to enter the navy medical corps, from which the following data seem of special importance:

A candidate for appointment in the medical corps of the Navy must be a citizen of the United States, between 21 and 30 years of age, a graduate of a reputable school of medicine, and must apply for permission to appear before a board of medical examiners. The application *must be in the handwriting of the applicant*, and must be accompanied by the following certificates:

(a) Letters or certificates from *two* or more persons of good repute, testifying from personal knowledge to good habits and moral character.

(b) A certificate to the effect that the applicant is a citizen of the United States.

(c) Certificate of preliminary education: The candidate must submit a certificate of graduation from an accepted high school or an acceptable equivalent.

(d) Certificate of medical education: This certificate should give the name of the school and the date of graduation.

(e) If the candidate has had hospital service or special educational or professional advantages, certificates to this effect, signed by the proper authorities, should also be forwarded.

The applicant will save unnecessary correspondence if he will make sure when submitting his application that the qualifications enumerated above are clearly and plainly described in his letters or certificates.

The next examination of candidates will take place on or about July 6, 1915, at the following naval stations: Washington, D. C.; Boston, Mass.; New York, N. Y.; Philadelphia, Pa.; Norfolk, Va.; Charleston, S. C.; Great Lakes, Ill.; Mare Island, Cal.; Puget Sound, Wash. Applications accompanied by the necessary letters or certificates should reach the Bureau of Medicine and Surgery, United States Navy Department, Washington, D. C., not later than June 26, 1915.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING APRIL 24, 1915.

April 13, Medical Director E. H. Green, placed on the retired list from April 18, 1915, detached, all duty; to home.

Asst. Surgeon Talmadge Wilson, M.R.C., detached, Naval Medical School, to Asiatic Station, via May Transport.

Asst. Surgeon S. M. Taylor, M.R.C., detached, Naval Medical School, to Asiatic Station, via May Transport.

April 21, P. A. Surgeon Micajah Boland, detached, *Iris*, to home.

P. A. Surgeon J. C. Parham, to Navy Yard, Charleston, S. C.

Asst. Surgeon H. M. Stenhouse, M.R.C., detached, Naval Medical School, Washington, D. C., to *Iris*.

April 23, Surgeon A. D. McLean, Commissioned from June 25, 1915.

Surgeon W. S. Pugh, commissioned from June 25, 1915.

Surgeon C. E. Ryder, commissioned from December 15, 1915.

Asst. Surgeon C. A. Costello, M.R.C., detached, Navy Recruiting Station, Chicago, Ill.

April 22, the following Assistant Surgeons have been detached from the Naval Medical School, Washington, D. C.:

Medical Reserve Corps. William McKinney, E. L. Matthews, J. F. Newberger, W. E. Lawhead, A. L. Bass, Arthur Freeman, A. R. Barrow, J. M. Quinn, J. H. Harris, C. F. Glenn, A. C. Thompson, G. E. Faulkner, N. M. McClelland, R. L. Natkemper, A. E. Mann.

NOTICE.

DINNER TO DR. THEOBALD SMITH. The postponed dinner to Dr. Theobald Smith is to be held at the Harvard Club, Boston, on the evening of Wednesday, June 2. Those wishing further information about the dinner may apply to

DR. MARSHAL FABYAN,
379 Commonwealth Avenue, Boston.

SOCIETY NOTICES.

ESSEX SOUTH DISTRICT MEDICAL SOCIETY.—The annual meeting of the Essex South Medical Society will be held Thursday, May 13, 6.30 P.M., at the Relay House, Nahant. Election of officers for 1915-1916 will follow the dinner.

The meeting will be held jointly with the Lynn Medical Fraternity.

Dr. H. D. Arnold, Dean of the Harvard Post-Graduate Medical School, will be a guest and will talk on "Circulatory Disorders."

The censors meet Thursday afternoon, May 13, 2 P.M., at Salem Hospital, for the examination of candidates for admission to the Society.

J. F. O'SHEA, M.D., *President*,
H. P. BENNETT, M.D., *Secretary*.

HARVARD MEDICAL ALUMNI ASSOCIATION.—The triennial meeting of the Harvard Medical Alumni Association will be held in Boston on May 20. Morning program, at the Massachusetts General Hospital, Boston City Hospital, Free Hospital for Women, and Psychopathic Hospital.

1 P.M., lunch at the Harvard Medical School. Afternoon program, at the Peter Bent Brigham Hospital, The Children's Hospital, The Cancer Hospital, and all the departments in the buildings of the Harvard Medical School.

Dinner at the Harvard Club at 7.30 P.M. All Alumni whether or no members of the Association, are invited.

CHANNING FROTHINGHAM, JR., M.D.,
Chairman of Committee of Arrangements.

RECENT DEATHS.

DR. WILLIAM B. RICE, who died on May 2 at Buffalo, N. Y., was born at Port Byron, N. Y., in 1826. After teaching school for a time he studied medicine and subsequently practised his profession for many years in Niagara County. He was particularly known for his effective work during an epidemic of enteric fever at Niagara Falls. He is survived by three daughters and two sons.

DR. W. P. DILLON of Ottawa, Canada, is reported to have been killed in action with his regiment in France. He had been for many years a well-known local practitioner at Ottawa.

DR. ARCHIBALD ELEXIS MACDONALD, formerly a practitioner in the North End of Boston, died at Jamaica Plain, Mass., April 27, aged 87 years. He was born in Prince Edward Island. He graduated from the Harvard Medical School in 1865 and joined The Massachusetts Medical Society in the same year, being a Fellow at the time of his death. He was at one time surgeon of the Ninth Regiment, M.V.M., and a member of the Ancient and Honorable Artillery Company. One of his sons is Dr. Charles F. MacDonald of Boston, and he is survived by two daughters and two other sons.

BOOKS AND PAMPHLETS RECEIVED.

Great Men and How They Are Produced, by Casper L. Redfield. Chicago. 1915.

The Boston Medical and Surgical Journal

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Address

"DO'S" AND "DON'TS" IN THE DIAGNOSIS OF EARLY PULMONARY TUBERCULOSIS IN ADULTS AND CHILDREN."*

By JOHN B. HAWES, 2d, M.D., BOSTON.

THERE is no more important subject in medicine than the early diagnosis of tuberculosis. It is one concerning which I frankly admit that I can offer nothing especially new. I can merely call attention to various well-known points, and reiterate the same old truths, the majority of which every doctor is, or should be, familiar with. I am purposely arranging what I have to say in very elementary form. The medical literature of today is so filled with articles of complex nature, detailed, and often difficult to understand and digest, that I believe one which is simple in the extreme may be a relief, and may be welcomed by the general practitioner.

Despite the great number of papers and books which have been written on the diagnosis of early tuberculosis, the medical profession has still a long way to go. I am constantly receiving application blanks for admission to our state sanatoria, in which the doctor has classified his patient as "incipient," and yet has frankly given certain data in the way of temperature, pulse, loss of weight, etc., which directly contradict his statement. This, al-

though not satisfactory, at least means that the physician is frank and honest, and has given the facts as he saw them.

On the other hand, I am constantly sending patients to our State Sanatorium at Rutland,—reserved, as you know, for early and incipient cases,—because from everything that I could judge by on the application blank, the patient was really a Rutland case. Far too many of these patients on their arrival at the Sanatorium are at once classified as "advanced." On the whole, however, the situation is slowly improving. In 1910, when the state board, of which I am secretary, first took over the Rutland Sanatorium, doing away with the old system of special examiners for that institution, and placing this work on the shoulders of the medical profession of this state, where it really belonged, the percentage of incipient cases at Rutland fell from about 30%, under the old system, down as low as 18% of the whole number. Gradually the proportion of incipient cases has been rising, so that during the past year the proportion of incipient cases was 37% of the whole,—the highest that it has ever been in the history of the Rutland State Sanatorium.

I have taken up what I consider the most important points, and have discussed each one in turn.

DIAGNOSIS IN ADULTS: "DO'S."

Remember the following points:—

- (1) Take a careful history of your patient.

This procedure is probably more neglected

* Read at a meeting of the South Boston Medical Society, Feb. 8, 1915.

than any other. The average busy physician with an office full of patients, or with various outside visits to make, does not like to listen to the long and often disconnected tale of a worried and nervous patient. He wants to get down to bed-rock, as he calls it, at once,—to get at the real facts, which he believes he will find by examining the chest. He makes a great mistake in so doing. History taking is an art in itself, and one well worth cultivating. The time which it takes need not be long. While it is well in some cases to let the patient do most of the talking, in most instances it is better for the physician to ask certain definite questions in a logical and regular sequence. I have a definite routine in my own work, from which I very seldom vary. It takes but a few minutes to find out concerning family history. If there is a family history of tuberculosis, it is important to go further and to find out concerning the intimacy and length of contact with the afflicted person. The habits of the patient should be briefly gone into, especially the question of syphilis.

In the past history, the children's diseases are of comparatively minor importance, except measles,—particularly if this occurs in adult life. I invariably ask every patient whether during the years from 15 to 21 he considered himself, or was considered by his parents, as of the strong and robust type, the thin and wiry type, or of the delicate type. The correct answer to this will give much valuable information.

Coming to the present illness, it is important to ask not, "When did you first feel sick?" but rather, "When did you last feel perfectly well?" This should be followed by finding out exactly for what special thing the patient comes for advice. It takes far longer to describe this process than it does to take the history itself, in most cases.

(2) *Remember the paramount importance of constitutional signs and symptoms.*

If in diagnosing a given case of suspected tuberculosis, I were obliged to give up one of two things,—either the use of my stethoscope and percussion, or a careful inquiry into the constitutional signs and symptoms of the patient, I would decide at once to do away with auscultation and percussion, as of infinitely less importance. In far too many cases the physician pictures in his own mind a case of tuberculosis as a patient with a bad cough and a positive sputum, and on examination, with dullness, bronchial breathing, and râles at one or both apices. In most cases, except for a cough, which is usually present, the constitutional signs and symptoms are far more striking, and their study gives far more information than anything else.

(3) *Remember that loss of weight must be satisfactorily explained.*

Among my routine questions I ask every pa-

tient: First, "What is your maximum weight?" Second, "Your present weight?" Third, "What do you consider good average weight for you in health?" Fourth, if the patient has lost weight, "Over how long a period has this loss taken place, and how do you account for it?"

Unless these questions are asked, and the matter gone into in detail, the physician is apt to be led astray. A patient might say that he has lost twenty pounds in weight during the past six months; unless this loss can be satisfactorily explained, it would be a very important factor indeed. On inquiry, however, it might be found, and frequently is found, that there is a perfectly good reason for this decline. Unless this loss can be explained in some way, it should be considered as an important factor in your final diagnosis.

(4) *Loss of strength and energy.*

Along with loss of weight, there may or may not be a loss of strength and energy. The combination of the two is of more importance than either one alone. This is something concerning which inquiry should be made in every case.

(5) *Do not forget the importance of undue fatigue and ease of tire.*

I always ask my patients if they feel rested in the morning after a good night's sleep. I likewise inquire as to whether they are more tired out at night than they feel that they ought to be. Most of us after a hard day's work are naturally tired in the evening. There is, as of course you know, a vast difference between wholesome physical fatigue, which is a natural and proper feeling, and that other kind of fatigue, which is distinctly abnormal. I find that generally patients have very shrewd ideas on this subject. It is important to bear in mind, particularly in women, that in neurasthenic conditions and others of a similar nature, this symptom of undue fatigue and ease of tire may be a prominent one.

(6) *Continual or occasional evening fever must be explained.*

The patient's own ideas as to whether or not he or she has had fever are apt to be very vague. This is a point which the physician must investigate for himself. The thermometer is not used anyway nearly as much as it should be. In the absence of other definite causes, if a patient is found to be running an afternoon or evening fever of 99° or over, a tentative diagnosis of some such infection or toxemia as tuberculosis is justifiable. It is not always possible, and often is impossible, to get satisfactory results with temperature and pulse records at home. In many instances, however, one can obtain valuable information in this way.

(7) *Remember the importance of a subnormal temperature accompanied by a high pulse.*

In a recent valuable article, Dr. Arthur K. Stone of this city has emphasized this point. It

is one rarely mentioned in the literature. I do not say that the combination of the subnormal temperature and high pulse always means tuberculosis. I do say, however, that this combination, along with other signs and symptoms, may be and often is caused by tuberculosis.

(8) *Remember that a hemorrhage is evidence of pulmonary tuberculosis until the contrary is proved.*

There ought to be very little discussion needed on this point. I believe that every physician knows this just as well as I do, but the fact remains that doctors throughout the length and breadth of this Commonwealth are continually telling patients who have consulted them for a hemorrhage of this kind that the blood comes from the nose, the throat, the gums or the stomach. In other words, they are afraid to tell the patient the truth about the matter, simply because in other respects he often seems so perfectly well and strong.

Of 80 patients who had been treated in our state sanatoria, and who first consulted a doctor on account of a hemorrhage, 39 were told by their physician that they did not have consumption, and that the blood did not come from the lungs. Failure to observe this rule is causing many tragedies and unnecessary deaths.

(9) *Bear in mind that pulmonary syphilis is not so uncommon as it is supposed to be.*

If you bear this fact in mind, you will once in a while make a brilliant cure of a well-marked case of tuberculosis by means of mercury and iodide of potash. Particularly in those cases in which the lung signs are unusual and obscure, if you can obtain a definite history or even an indefinite history of luetic infection, give the patient the benefit of the doubt, have a Wassermann done, or even without the Wassermann, give him mercury and iodide of potash.

(10) *Remember that early cases of exophthalmic goitre may simulate early pulmonary tuberculosis in every way.*

While the treatment of these two conditions is exactly the same, it is, of course, quite unfair to condemn a patient as a consumptive when he is really suffering from excessive thyroid secretion. In women where the nervous symptoms predominate, although the thyroid enlargement may be of the slightest, and ocular signs may be absent, remember and at least consider the question of hyperthyroidism before you state definitely that the patient has consumption.

(11) *Depend more on your thermometer, your history and constitutional signs and symptoms than you do on percussion and auscultation.*

As I have stated before, physicians are far too prone to jump for the stethoscope and to look for something which they can see, feel or hear, instead of studying the somewhat less tangible

and less satisfactory, although far more important, evidence obtained from the patient's history, habits and symptoms.

(12) *Remember to use your common sense.*

Bear in mind that it is a human being, and not merely a pair of lungs, that you are dealing with. If medicine were an exact science and if our methods of diagnosis were those of mathematical precision, this point would not be so important. In my mind, the art of medicine should play just as great a part as the science of medicine. One will not go so far in diagnosing tuberculosis, or any other disease, in its early stages, therefore, unless he considers the human side of the subject.

"DON'TS."

Do not forget the following:—

(1) *Don't be in too much of a hurry.*

Some diagnoses can be hurried. It takes only a few minutes to take a drop of blood and to stain and examine a slide for malaria. It often takes no time at all to diagnose a broken arm or leg. One cannot hurry the diagnosis of early tuberculosis, however.

(2) *Don't forget to strip the patient to the waist.*

Whether man or woman, child or adult, this should be done in every case. No question of false modesty should be allowed to stand in the way of so doing. The physician who attempts to listen through the clothing at once classifies himself as a remarkably poor doctor.

(3) *Do not expect to find marked signs in the lungs in every case.*

If you will remember the pathology of early tuberculosis, you will, of course, see how impossible it is for very marked signs to be present. As I stated before, the old picture in most of our minds of incipient tuberculosis consisted of dullness, bronchial breathing, and râles at one apex. This combination does not mean incipient tuberculosis. The students at our medical schools do not receive sufficient training on this matter, for the evident reason that cases of early tuberculosis are hard to demonstrate.

(4) *Do not wait for a positive sputum.*

How many patients there are who have been lulled into a sense of false security by the possession of a postal card from a local or state board of health, bearing the words, "Tubercle bacilli not found." While the statement that "When bacilli are present in the sputum, the patient is already in the advanced stages, and his chances of cure nearly gone," may be an extreme one,—fundamentally it is true. Therefore, if there are other signs and symptoms, showing that your patient is sick, even if the sputum may be negative, give your patient a chance, and start him on the right track. It may be

wise to explain the situation to him frankly, and to say that while you cannot state definitely in the absence of a positive sputum that he has tuberculosis, you feel very sure that he does have it, and the only safe thing for him to do is to treat himself as if he were a consumptive.

(5) *Don't forget that practically all pleurisy, wet or dry, of idiopathic origin, are tuberculous.*

This statement does not, of course, include pleurisy following or accompanying pneumonic or rheumatic processes or those due to trauma. It should also be borne in mind that many of these tuberculous pleurisy are caused by a very mild and non-virulent type of organism. I do not believe that every patient with a pleurisy should necessarily be at once packed off to a sanatorium; I do believe, however, that he or she should be made to understand definitely and clearly the exact state of affairs, that the process is due to tuberculosis and that careful supervision and watchfulness are necessary to prevent disaster.

(6) *Don't forget to look elsewhere than the lungs.*

Scars in the neck, or signs of tuberculosis in other parts of the body may give you the best of evidence. Make your routine physical examination as thorough as possible.

(7) *Don't base your diagnosis on x-ray evidence alone.*

I feel very strongly on this point. Whereas the x-ray, properly interpreted by an expert in his line, can give valuable evidence as to the extent of any given lesion, we must always remember, however, that the x-ray deals simply in lights and shadows, and that it gives no information as to whether any given process is active or inactive, old or recent. The x-ray is a valuable adjunct to our means of physical examination; it should never take the place of our older, well-known methods.

(8) *In adults do not place any value on the skin tuberculin test, whether positive or negative.*

In patients over 18 or 20 years. I would pay absolutely no attention to a positive or negative skin tuberculin reaction. As far as the subcutaneous test is concerned, my best advice to the general practitioner is to leave it alone, and let those only perform this test who are qualified by experience and the nature of their training to do it properly, and to interpret its results wisely.

(9) *Don't forget that chronic bronchitis, influenza, bronchiectasis, emphysema, asthma, and other chronic and sub-acute lung conditions still exist and will continue to exist, and that they often resemble pulmonary tuberculosis.*

In these days when medicine is made a public

matter, and educational campaigns in suppressing tuberculosis and other diseases are carried on, our younger and enthusiastic doctors, particularly those recently graduated from the medical school or from the hospital, are apt to find tuberculosis everywhere and apparently to forget the existence of these other conditions.

At a recent meeting, Dr. John L. Morse of this city voiced this sentiment when he remarked that he has to spend much time among his students in assuring them that every child with a cough did not necessarily have consumption and that every baby with the snuffles did not invariably have syphilis. These points are worth remembering.

(10) *Don't forget that the reverse of the above is also true.*

While it is true that the conditions mentioned in the last heading often resemble pulmonary tuberculosis, and that many patients are given the stigma of that disease quite unjustly, it is, of course, evident to everyone that much more harm is done by quieting the patient's fears with the words "chronic bronchitis" or "influenza," when he really is consumptive.

(11) *Don't forget that people may be run down, tired, weak, etc., without having consumption.*

Here again there are the two sides to the question. While the diagnoses of debility, neurasthenia, and "run down condition," anemia, etc., are far too often given, and in far too many cases simply mean ignorance on the part of the doctor, there is, nevertheless, a growing tendency to cry out, "This is tuberculosis!" the instant any one of us gets below par in any way. There are clinics in Boston which I would hesitate to attend if I happened to have a bad cold, because I feel very sure that I would at once be called a consumptive, and that an application would be made out for me to go to Rutland. It is undoubtedly true that many of those periods which most of us have gone through, and which we have called being "run down"—usually in the spring—are due to a slight awakening of a hitherto latent tuberculous focus. It is dangerous, however, to carry this too far. The shop-girl, tired from the Christmas rush, may resemble a consumptive in many ways. It is needless to mention other examples of this condition of affairs.

DIAGNOSIS IN CHILDREN.

Diagnosis of early tuberculosis in children differs in many important details from that in adults. The general underlying principles, however are the same. The more important points I have tried to emphasize in the following pages:

"DO'S."

Remember the following points:—

(1) *Remember the difference between tuberculous infection and tuberculous disease.*

It is extremely important for every doctor to have a clear idea of the difference between tuberculous infection and tuberculous disease. It is a startling fact, but undoubtedly a true one, that by the time 80 or 90% of us reach the age of 15 years, we are already infected with tuberculousis. The mere fact that the great majority of us, however, remain strong and healthy, and live at least an average life-time, shows clearly that this tuberculous infection does not necessarily imply disease.

(2) *Remember the frequency of tuberculous infection.*

This I have emphasized above. Autopsy statistics and evidences based on reliable tuberculin tests have shown only too clearly the impossibility of escaping the tubercle bacillus. All we can do is to reduce to the smallest amount possible the number of bacilli that are taken into the body, and so to live that this tuberculous infection remains a quiescent and harmless process.

(3) *Remember that in children tuberculosis is primarily a disease of the glandular system.*

Whereas in infancy tuberculosis takes the form of a general septicemia, and is rapidly fatal, in the years of childhood it primarily affects the glandular system all over the body. It is only when this first line of defence is broken through that the lungs or other organs are affected.

(4) *Remember the importance of exposure, and that bovine as well as human sources are of importance.*

This is particularly important in the case of children. The modern campaign for clean milk has emphasized the fact that bovine tuberculosis in children, particularly of the glandular system, is often due to tuberculous milk. While there is wide variance as to the amount of tuberculosis due to this cause (up to 75%, according to English; and down as low as 5%, according to German investigators), it is, nevertheless, doubtless true that a very considerable proportion—probably 15 or 16%—of cases of tuberculosis in children comes from a bovine source.

(5) *Remember that in children by the time the lungs themselves are involved, the disease is far advanced.*

One of the greatest steps we have made in the diagnosis of this condition in childhood is our increased familiarity with bronchial gland tuberculosis. Whereas in adults, as I have said before, it is stretching the truth a bit to state that a patient must be past the incipient stages if we find tubercle bacilli in the sputum, and definite signs of a consolidation at one apex, in the case of children, however, it is only too true. We must make the diagnosis long before the pulmonary tissue itself is involved. In these real early cases one rarely finds signs at the apices. It

is by means of a positive cutaneous tuberculin test, the x-ray, perhaps slight interseapular dullness, sometimes enlarged veins on the chest, frequently a positive d'Espine's sign, combined with constitutional signs and symptoms, on which our diagnosis is based.

(6) *Remember the importance of constitutional signs and symptoms.*

In children, as in adults, the careful study of these signs and symptoms, which show that the whole body and not merely the lungs are sick, will offer the most reliable information.

The principal constitutional signs and symptoms are ease of tire, the loss of weight or failure to gain weight, pallor, malnutrition, and debility.

One of the superintendents at a Massachusetts State Sanatorium has gone so far as to state that in his opinion ease of tire and interseapular dullness alone justify a "tentative" diagnosis of tuberculosis. While I do not for a minute agree with this statement, even making the fullest allowance for the word "tentative," I do feel that if a child is pale, has lost weight, has slight fever, and at times a slight cough and in addition shows certain signs in the lungs, that a diagnosis of probable tuberculosis is justified, although I would not on such evidence alone call the child a consumptive.

(7) *Remember that, while in adults there is no cough characteristic of tuberculosis, in children there may be present a cough which is more or less characteristic of bronchial gland enlargement.*

These bronchial glands are situated at the root of the lungs, and if they attain sufficient size, may press on the trachea, the large bronchi, or on nerves, and thereby cause a paroxysmal, strident, brassy cough, usually without sputum, often closely resembling whooping-cough.

(8) *Remember that a positive skin tuberculin reaction is of infinitely greater importance in children than in adults.*

Dr. Orville F. Rogers of this city has recently made a careful study of this point from a fairly large number of cases at the Massachusetts General Hospital. He has come to the conclusion with which I would strongly agree, that in children of five years or under, a positive skin test is good evidence of active tuberculosis, and that such children are not apt to live long. Furthermore, that in children ten years old or under, a positive skin test means, on the whole, a greatly increased mortality from tuberculosis. The value of the positive test becomes less and less with increased age.

(9) *Remember that the x-ray in children may show enlarged bronchial glands, but that it does not prove these glands to be necessarily tuberculous.*

As I said in discussing the x-ray in adults, it gives no knowledge as to the etiology of these

glands, or to whether they are active or inactive, old or recent. We have been far too apt to take it for granted that glands as shown by the x-ray and by a positive d'Espine's sign are necessarily tuberculous. We are now learning that such enlarged glands may be present following any ordinary acute bronchitis, or any acute infectious disease.

"DON'TS."

Don't forget the following points:—

(1) *Don't fail to realize the responsibility you are taking in stamping a child as tuberculous.*

I feel very strongly on this point. I do not feel that it is at all fair to the child, to the parents, or indeed, to the community to stamp every child who is run-down, and who has a slight cough, as a consumptive, and to send him or her to a tuberculosis hospital or sanatorium.

(2) *Do not forget in cases of doubt that it is possible, and far better, to institute proper treatment without casting the stigma of tuberculosis.*

Nowadays, when the public in this state, at least, is fairly well alive to the need of preventive medicine, it is perfectly possible to put the child on a proper line of treatment, which will not only help to arrest his tuberculous process, if there be one, but will also improve his general condition and eradicate whatever germ may be in his system, without using the words "consumption" or "pulmonary tuberculosis."

(3) *Don't make up your mind beforehand as to what you are going to find.*

It ought not to be necessary to speak of this. Unfortunately, however, our minds are apt to run in certain channels. I personally have to guard constantly against this, and I know there are numerous other doctors who have the same tendency.

(4) *Don't forget that while a positive d'Espine sign is good evidence of enlarged mediastinal glands, it does not prove that they are tuberculous.*

I have spoken of this before, but the point is an important one. A positive d'Espine sign, or, in other words, bronchial whispered voice sounds, heard below the level of the fourth dorsal vertebra, is good evidence that the mediastinal glands are enlarged. It is not safe, however, from this sign alone to draw any further conclusions.

(5) *Do not expect to find marked signs in the lungs in every case of bronchial gland enlargement.*

This diagnosis is a difficult one to make. A type case is characteristic. Substernal dulness, interscapular dulness, enlarged veins on the chest, glands in the neck, and paroxysmal, brassy cough, make evident the underlying condition. In most instances, however, you must base your diagnosis on far less than this.

(6) *Don't forget that processes due to influenza, the pneumococcus, and other organisms are common in children, and are often mistaken for tuberculosis.*

Little patches of consolidation, due to either influenza or the pneumococcus, may simulate in every way one due to tuberculosis. While the treatment is approximately the same, the prognosis is, of course, very different. It is well to bear this in mind, especially in those cases where the lung signs are marked, but the constitutional signs and symptoms very slight or absent.

(7) *Don't forget that improper feeding, diseased tonsils, and increased adenoid tissue, a chronic middle ear, and other conditions may simulate tuberculosis.*

In other words, this simply means that your routine examination must be as thorough as possible; that you must not take it for granted that tuberculosis is the cause of a child's run-down condition, but must always be broad-minded enough to realize that other factors may be at work, and may adequately explain the present state of affairs.

(8) *Don't forget that your diagnosis rests, not on one or two striking signs and symptoms, but on an accumulated mass of simple details.*

In other words, after you have been over the case, have the evidence down in writing, if possible; if not, clearly in your mind;—and give it all due consideration before you come to your final conclusion. Do not be carried away by one or two striking points, whether negative or positive.

(9) *Do not forget to be frank and open with the parents, and to explain to them the exact situation.*

The days of mystery in medicine are passed. I find it, personally, far better to take the parents into my confidence whenever possible,—to explain to them if I am in doubt as to the state of affairs, exactly why I am in doubt; to explain to them why I am demanding that certain things be done, and advising a certain course of treatment. I am sure that I thereby get better results than I would if I were simply to say, "Do thus and so,"—without giving my reasons for so doing.

The above "do's" and "don'ts"—points to be remembered and points not to be forgotten—are, I believe, the more important features in the diagnosis of early tuberculosis. I sometimes wish that a large chart could be prepared, which could be hung up in every physician's office, so that he would be forced to see it every day, and to have it in front of him whenever he examined a patient. A mental chart, to be given a prominent place in every doctor's mind, will serve the purpose still better. I sincerely hope that these few somewhat elementary remarks of mine may serve to act in this capacity.

Original Articles.

STUDY OF 260 CASES OF ACUTE APPENDICITIS AT THE MASSACHUSETTS GENERAL HOSPITAL.

By LINCOLN DAVIS, M.D., BOSTON,

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As was said in a discussion on acute appendicitis at a recent meeting of the Surgical Section of the American Medical Association, the last word has not yet been said on acute appendicitis. Yet there is at the present time quite substantial agreement among surgeons as to when and how to operate for this condition.

There remains something to be said, however, on this subject as long as cases with perforation and abscess continue to come daily to our large hospitals. As Dr. J. M. T. Finney¹ forcibly expressed it: "The last word has not been spoken, or will it be spoken, until we have 100% recoveries. . . . When a death occurs from appendicitis it is *prima facie* evidence that somebody has made a mistake. When pus is found in appendicitis, it is *prima facie* evidence that somebody has blundered. It is not always the physician or is it the surgeon. . . . No case of appendicitis should progress so far as the formation of pus."

The prime factor in the mortality of appendicitis is delay in diagnosis. This threadbare doctrine must still be preached to the laity and the profession. Another factor in the mortality is even less excusable is the pernicious custom of administering a purgative early in the attack. In at least a third of the cases which form the basis of this report, violent cathartics had been administered before the patient came to the hospital. Often the castor oil or salts are taken on the initiative of the patient himself or his family, but, unfortunately, the family doctor, in spite of all that has been said on the subject, still continues to commit this serious offense. However desirable it might seem theoretically to empty the cecum by a cathartic in the earliest stages of an attack of appendicitis, when it might be assumed that there is merely swelling and congestion of the appendiceal mucous membrane, an enormous practical experience has taught surgeons that it is utterly impossible by any clinical sign to be sure of just what the condition of the appendix is at any given moment. How often the medical consultant, misled by the mildness of symptoms, lack of fever and pain, etc., is surprised and horrified to find at the time of operation that the appendix has already perforated. Appendicitis is notoriously insidious. In a few hours the mildest attack may break forth into the fulminating type. Who can say at any given moment that the appendix is not engorged and tense with acute inflammation, ulcerated and perhaps gangrenous and about to perforate? With such uncertainty as

to the actual state of inflammation in the appendix, what folly, to use no harsher term, to call into play deliberately the dangerous forces of vigorous peristalsis.

Before actual macroscopic perforation occurs, there is a migration of bacteria through the wall of the appendix which causes a localized peritonitis, with plastic exudate, and adhesions of the adjacent coils of intestine about the threatened locality. This is a protective process on the part of nature which is preparing to wall off and localize the flood of septic material which is poured out upon actual perforation.

The ideal treatment for acute appendicitis, of course, is to remove the appendix while the inflammatory process is still confined to within its walls, and thus forestall perforation. This, unfortunately, is not always possible on account of obscurity of diagnosis, objections on the part of the family, lack of necessary surgical skill at hand, etc. Granted that prompt operation is the logical treatment for acute appendicitis just as soon as the diagnosis is made, it should be the aim of the physician to promote, or at least not to hinder, the protective efforts on the part of nature while making the diagnosis or awaiting the arrival of the surgeon. This is done by the withholding of food and cathartics, unloading the lower bowel by enema if necessary, and checking peristalsis by small doses of morphine. The disastrous results of violent purging may be readily conceived in premature perforation of the appendix, before the protective plastic adhesions are formed; the tearing apart of such soft adhesions, should they already have formed, and the flooding of the peritoneum with the septic contents of appendix and cecum. Peristalsis not only hastens perforation and prevents localization, but also increases the amount of septic intestinal contents poured out.

Now it must be said in justice to the doctor, that a cathartic is seldom given after the diagnosis of acute appendicitis has been made, except by the few case-hardened sinners who attempt to "scatter" the inflammation by a purge.

The average general practitioner sees perhaps 50 cases of bellyache to one of appendicitis, and castor oil is a time-honored and ready remedy for the former. Appendicitis should be suspected in every case of abdominal pain and a cathartic given only when it can be absolutely excluded. It should be a rule never to give a cathartic for acute abdominal pain with fever. Use an enema instead. This is better treatment even for a bellyache.

About fifteen years ago there was much criticism by surgeons of general practitioners for giving morphine in suspected cases of appendicitis, thereby masking symptoms and delaying diagnosis. This criticism had a most marked effect, so that today practitioners pride themselves on the withholding of morphine in their cases, using an icebag or other local anodyne instead. The preliminary administration of morphine is now quite unusual in cases coming into the hos-

pital. As a matter of fact, after the diagnosis is made, the administration of morphine is not at all bad treatment; its administration should not, however, delay the operation. Just why general practitioners have taken the criticism as to the use of morphine so to heart, and yet disregarded the ten times more serious charge of purging, is difficult to understand.

This series of 260 cases includes my entire personal experience at the Massachusetts General Hospital. With the exception of one case operated on during internship in 1899, the cases date from 1905, with increasing numbers each year, through my last service in 1914. Only definitely acute cases are included; no cases of the subacute, chronic or relapsing type are counted in this series. It does, however, include all cases of general peritonitis arising from the appendix, even cases in which the diseased appendix was not seen, but in which the clinical diagnosis was evident. Furthermore, every case seen was operated upon, the operation being immediate in all but four cases, two in which preliminary Ochsner treatment was tried for a short time, and two other cases in which the patients were kept over night under an incorrect diagnosis. That these cases were all of the acute type is attested by the fact that in all but 12 drainage was used. There may have been, and probably was, an excess of caution in this direction. When the disease is strictly confined to the appendix itself, drainage is probably not necessary, but personally I have felt safer when there was fever and leucocytosis, with fibrin on the intestine and cloudy fluid about the appendix, to leave in a cigarette drain. It weakens the wound hardly at all if a muscle retracting incision is used and it is removed early, while it is very conducive to one's peace of mind.

The appendix was removed in 244 cases, an attempt always being made to do so, unless the general condition of the patient or the local conditions seemed to forbid. The appendix was reported perforated in 87 cases, gangrenous in 92 cases, ulcerated in 11 cases, acutely inflamed and swollen in 52 cases. In one case of general streptococcus peritonitis the removed appendix was reported as not inflamed. No other definite source of infection was found, although the seminal vesicles were suspected. This case probably should not be included here, though clinically it was typical of appendicitis.

In 16 cases the appendix was not removed. In 13 of these, large localized abscesses were merely drained without special search for the appendix; in 2 cases the abscess was drained by rectal puncture. In 3 cases of severe general peritonitis, the peritoneal cavity was merely drained without search for the appendix. There were all together 136 cases, over one-half the entire number, in which there was pus outside the appendix in the peritoneal cavity. In 108 cases the pus was localized in one or more abscesses. In 28 cases pus was free in the peri-

toneal cavity as far as the exploration permitted the determination of this fact. In very many other cases there was free turbid fluid, which was not regarded as true pus.

As previously mentioned, an operation was performed in every case seen; the operation was immediate in all but 4 cases. A large number were performed at night. Fifteen patients died, a mortality of 5 $\frac{3}{4}$ %.

A study of the 15 fatal cases shows that 7 of them, Nos. 192953, 171254, 170833, 169862, 176985, 196620 and 195054, exhibited all the signs of severe general peritonitis before operation, viz., general abdominal rigidity, tenderness, distention, vomiting, poor pulse and great prostration. They varied from the third to the sixth day of the disease. They were recognized as desperate risks before operation. Immediate rapid operation for drainage and incidental removal of appendix, if readily accessible, was undertaken in 6 cases. The presence of diffuse peritonitis was confirmed in all. There was no rally in any of these cases after operation, and death ensued within a few hours in all, except one case, in which death occurred after five days. In one case Ochsner treatment was tried for four days, with some improvement at first, then the patient began to fail again, with rising pulse and temperature, vomiting and failure to retain salt solution. He was then operated on as a last resort and 2 or 3 pints of pus drained from the abdominal cavity, after which he sank rapidly and died within a few hours.

It is my firm conviction that none of these seven cases could have been saved by any operative procedure. Whether or no Ochsner treatment might have resulted favorably in any of them, it is impossible to say. It was tried in only one other case, No. 171338, a boy of 8 years, who entered the hospital on the fourth day of the attack, desperately sick, with vomiting, distention, pulse 170 and cold extremities. He was put on Ochsner treatment for four days and made remarkable improvement; pulse fell and temperature rose, vomiting ceased, and at the end of four days he seemed to have reached the turning point and to be again on the downgrade. A rapid operation was done, with drainage, and he made a stormy but ultimate recovery.

Of the 21 other cases in which evidence of diffuse purulent peritonitis was found at operation, there were 14 in which there were severe pre-operative signs and symptoms of peritonitis. One or two of these were almost, if not quite, as sick as some of the 7 that died. It is a striking fact that over half of these cases were in children. As a result of this review I am convinced that the Ochsner treatment has a distinct, limited, but precious field of usefulness. As a general rule I prefer to apply it after operation rather than before, but as its author requests, we can at least make use of it in the cases in which we feel that operation will surely result fatally. I am inclined in the future to give it a

more liberal trial in those cases at about the third or fourth day, when perforation has just taken place and which are temporarily overwhelmed and prostrated by the dose of septic poisoning.

Of the 8 remaining fatal cases there was no particular indication of a bad prognosis at the time of operation. One case, to be sure, No. 90581, had a temperature of 104.6 at time of entrance before operation, on the third day of the disease. He had a gangrenous appendix wrapped in omentum. The appendix was removed and stump and pelvis drained. Chills occurred on the second day after operation and continued thereafter. He finally died six weeks later, of pyelophlebitis, plus abscesses of liver. Of the 7 other fatal cases, 4 cases had well developed and fairly well localized abscesses, with symptoms of from four to eleven days' duration, 2 cases had more or less localized peritonitis and one case had a high retrocecal gangrenous appendix with very little pus. The appendix was removed in all of these cases, and in 2 of them it may fairly be objected that the dissection necessary to permit of this was contributory to the spreading of a fatal peritonitis. In one other case the result might be attributed to technical error, that of a large pelvic abscess with fibroids of the uterus. A median incision was made and one tube and ovary removed before the causative factor, a gangrenous appendix, was found and removed. A fecal fistula of the small intestine developed in this case; three unsuccessful attempts were made to close this, and the patient finally succumbed on the 24th day. In this case and one other in which marked costo-vertebral tenderness led us to suspect a kidney lesion, operation was delayed over night. I do not think that the delay in either of these particular cases was an important factor in the result. Such errors of diagnosis, however, occurring in a great hospital, with every facility for investigation at hand, should incline us to some charity in condemning the medical consultant for occasional delay in diagnosis in the patient's home. In the other fatal cases, four in number, the technic of operation was the same as had been carried out in a great many similar cases with success. It can only be said that for some reason the infective process spread and involved the rest of the peritoneum. One of the cases was complicated by post-operative bronchitis and severe secondary hemorrhage from the epigastric vessels on the eleventh day. In 2 cases there was an unusual amount of foul, bloody oozing from the wound, not sufficient to be considered a hemorrhage, but very likely a factor in spreading infection.

The question of when not to remove the appendix in any given pus case is one requiring the nicest degree of judgment. As a rule I believe that it is possible to remove the appendix without undue increase in risk in the great majority of cases. On the other hand, when the patient is old or in poor condition, or the appen-

dix not readily accessible, there is no question but that we should content ourselves with simple drainage.

The prevention of pylephlebitis is undoubtedly often beyond our power. When a wad of inflamed omentum is wrapped about a gangrenous appendix, I believe it is advisable to ligate and resect a generous portion of the omentum with the appendix, especially if there is a very high temperature or chills. Furthermore, having watched the harrowing progress of one case of pylephlebitis of my own, and another in the hands of a colleague, I feel that I never would again stand by without making some attempt at arresting the septic process by ligation of the affected tributaries of the portal vein. The successful cases of Wilms² and Braun³, and the experimental work of Neuhof⁴ and others have opened up suggestive possibilities in this line.

Besides the very serious complications of peritonitis and pylephlebitis, already considered, other complications occurred as follows in 23 cases, often two or more associated together in a single case: Residual abscesses developed in 8 cases; pelvic, 5 cases; abdominal, 2 cases; subdiaphragmatic and abdominal, 1; pneumonia, 4 cases; broncho-pneumonia, 1 case; bronchitis, 1; secondary hemorrhage from epigastric vessels, 2; intestinal obstruction, 2; mental depression; salpingitis, 1; thrombosis of leg, 1; fecal fistula, 2; scarlet fever, 1; miscarriage, 1; infectious diarrhea, 1.

Secondary operations were performed for complications in 13 cases, not including 3 cases in which enterostomy was done through the wound in nearly moribund general peritonitis cases. I have yet to see any benefit from this procedure in such cases. Residual pelvic abscesses were opened in 3 cases by vaginal puncture, once by rectal puncture. In 4 cases abdominal incisions were made for residual abscesses, in 2 cases in the left flank. In one of these cases there were 3 such operations, one being for subdiaphragmatic abscess. Two cases of intestinal obstruction required secondary operation for freeing of adhesions, and in one case enterostomy; both resulted in cure. Three unsuccessful attempts were made to close a high fecal fistula in a badly infected case with fatal issue. The other case of fecal fistula closed spontaneously. Exploratory laparotomy for liver abscess was done in one case. Appendectomy was done in one case in which the appendix abscess had merely been drained at the first operation.

In the after-treatment of cases the Fowler position has been used when there has been any suspicion of existing or impending peritonitis. Rectal saline solution is given either by continuous seepage, as recommended by Murphy, or more usually at intervals. Cathartics are shunned during early convalescence, the bowels being moved by enemas only. Cigarette wicks which are used almost exclusively, are left

when pus is present for seven to eight days undisturbed. I have never seen any trouble from leaving them too long, but, on the other hand, have observed serious consequences from their too early withdrawal. They are never changed while the patient is distended, except as a last resort. After seven or eight days, a fairly firm sinus tract of granulation tissue has formed, and the original wick may easily be replaced by a smaller one of gutta-percha tissue to an equal depth. The gradual shortening of wicks is not practiced. When the discharge has become small in amount the wick is removed entirely, perhaps by the tenth to the twelfth day, depending on the nature of the case. Drainage through the wound, usually at the lower end, with suture of the upper portion, has been found very satisfactory. The occurrence of secondary hemorrhage from the epigastric vessels, which was seen twice in this series, once it was of trifling extent only, might be claimed to be due to the presence of the drain, and urged as an argument against the method. It can be obviated by ligating those vessels in all drained cases, when they are exposed at the edge of the wound. When residual pelvic abscesses occur, as they will occasionally, in spite of all precautions, I wish to emphasize the value of vaginal or rectal drainage. This has been considered in previous papers.⁵

Of the 245 patients who survived the operation, data are at hand as to their condition in 86 cases at the end of one year. There were 4 cases of hernia in the scar; 1 case reported as having a weak scar and 3 bulging. In 4 cases there were inguinal hernias, in 1 case there was double hernia. Two cases had persistent sinuses. One patient had pain in the side and 2 complained of weakness in the side. In the remaining cases the results were entirely satisfactory.

The study of this series of cases has brought out nothing new. It merely emphasizes certain points already familiar, but which perhaps cannot be too often reiterated. The great factor in the mortality of acute appendicitis is delay; delay in making the diagnosis; also to a less degree, delay after the diagnosis is made. A second factor is the practice of giving a purge during the acute attack. There is still need of preaching these doctrines to the laity and the profession. A temperature above 102.5 in acute appendicitis is distinctly rare. In the few cases in which it occurs it is of bad prognostic import. Cohnsner treatment has a distinct field of usefulness. The operation in cases involving peritonitis should be directed to removal of the primary focus if accessible, and to securing of drainage with as little disturbance as possible of the general peritoneal cavity. The use of rubber tissue or gutta-percha wicks, rectal saline, Fowler's position, the avoidance of catharsis by mouth, and the leaving of wicks undisturbed, have simplified and safeguarded the after-treatment enormously.

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OBESITY AND MALNUTRITION.*

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Scope of Paper.

In considering this subject, only what might be called primary obesity and primary malnutrition will be discussed—that is, these conditions occurring as complications or sequelae of other diseases will not be considered.

The two conditions really belong under one heading, as in both the question is simply one of ratio of amount of nourishment ingested to the amount burned up by the bodily activities. The undernourished individual takes too little of the right kind of food, and the fat person takes too much.

MALNUTRITION.

We may, then, consider malnutrition as a condition due to a continued undersupply of nourishment, in either amount or kind. Our type case is a thin, active, nervous, constipated young woman with a poor appetite, often suffering with headaches, perhaps with indigestion, and in some cases having a visceral ptosis. She is usually a wage earner, and has frequently consulted physicians to see if she has tuberculosis, cancer, or some blood disease. She has been given iron, cod liver oil, malt, and Fellow's Syrup of Hypophosphites, and may have been accused of having latent tuberculosis, or, if she has consulted a strictly up-to-date practitioner, intestinal stasis.

Etiology.

The etiology of this condition is primarily a continued undersupply of suitable food, taking into consideration the energy out-put of the patient.

Frequently appetite is variable or entirely absent. In some cases the strenuous life is to be blamed. The patient sleeps in the morning until the last possible moment, hurries through breakfast or omits it altogether, takes insufficient time for lunch, (perhaps imbibing it at the soda fountain), and is so tired at dinner time that she cannot eat and perhaps is not able to digest a "square meal." Social activities may claim time in the evening that should be devoted to rest.

* Read before the Fall River Medical Society, February 3, 1915.

Ignorance of food values and of bodily needs frequently plays a part, and nature's requirements are neglected with the usual result.

Pathology.

Strictly speaking, there is nothing pathological in these cases. There is simply an insufficiency of adipose tissue, and perhaps a mild anemia.

Diagnosis.

In the type mentioned above we must first rule out all chronic disease. A careful history and searching physical examination, with such laboratory aids as may be indicated, will definitely dispose of all question of tuberculosis, nephritis, syphilis, malaria, the primary anemias, and hemorrhage from a peptic ulcer, the uterus, or hemorrhoids. Careful computation of the daily caloric intake will settle the diagnosis, as a rule.

Prognosis.

The prognosis is good, with proper treatment.

Treatment

The general indications are—to increase the caloric intake and, if possible, decrease the energy output.

1. **STUDY OF CASE.** The first step in the treatment is a careful study of the dietary and other habits of the patient, including the amount and kind of exercise; the number of hours of sleep and, in general, the ordinary daily régime of the patient.

2. **CALORIC INTAKE.** The next step is to increase the caloric intake. Insist upon a hearty breakfast, whether it is desired or not. Most of our tastes are merely habits, and may be changed with surprising ease, if we persevere. Sufficient time must be taken for luncheon and dinner. Attention must be paid to the caloric value of foods. The patient must be taught to take plenty of butter on bread and vegetables, cream whenever obtainable, and the fatter kinds of meat and fish. Roast beef, for instance, has nearly three times the caloric value of chicken, and mackerel almost exactly twice that of haddock. A glass of milk or a raw egg may be taken immediately after finishing each meal, and on retiring. Luncheons should not as a rule be given between meals, as they lessen the appetite for the next meal.

3. **PROTEID.** Proteid should be given to exceed slightly the amount required to maintain nitrogenous equilibrium—say 70 to 90 grams—as many of these patients are slightly anemic.

4. **DRUGS.** Drugs help in stimulating the appetite and act as general tonics. The bitter tonics and hydrochloric acid before meals are valuable to stimulate the appetite, and iron and arsenic are indicated, if the patient is anemic.

5. **SLEEP.** At least nine hours' sleep should be insisted upon, and if possible a short rest after luncheon and dinner should be taken.

6. **EXERCISE.** Only moderate exercise should be prescribed, and that should be taken out-of-doors. Riding and walking are the best forms.

7. **EDUCATION.** The most important factor of all is to teach the patient how to live, as the best results are impossible without hearty co-operation of physician and patient. Under such favorable circumstances, a patient should gain on the average, about one pound per week.

I mentioned above the fairly frequent occurrence of ptosis of the abdominal viscera in this class of patients.

Ptosis, if present, is not necessarily an important factor. Unless there is definite stasis, the condition need not as a rule be considered in treating the case. If the stomach is dilated and does not empty properly, or if there is a prolapsed and dilated caecum, with stasis at this point, the patient does not belong in this class. The x-ray settles this question.

OBESEITY.

At just what point obesity begins is very hard to define. Without trying definitely to settle this point, we may say that obesity is an increase of adipose tissue beyond the needs of the organism. Fat is stored-up nourishment, and a certain amount is conducive to the best working of the bodily activities. An excessive amount throws extra and unnecessary work on the various organs, both as a dead weight that must be carried about, and as an obstruction to many bodily functions.

Our type case here is a middle-aged person who is gradually reducing his physical activities as his income increases. He takes just as much food, and of a rather richer quality than formerly. He may ride where formerly he walked. Sometimes he takes pleasant but stimulating drinks of high caloric value, where formerly water sufficed. Quite as frequently the patient is of the female sex, but the factors producing the increase in adiposity are the same.

Etiology.

Habitual excess in the ingestion of nourishment, together with lessened physical activity, are the usual etiological factors. Rarely other causes may be found, such as atrophy of the thyroid, with the resulting myxedematous condition; disease of the posterior lobe of the hypophysis,¹ castration, and menopause. Some authorities cite a racial factor, as the Jewish people seem inclined to adiposity, but it is a question if this is not due to habits of eating, rather than to any unusual metabolism. Lastly, some authorities ascribe a perverted metabolism as the cause in some cases. If this is ever a causative factor it may be disregarded in treatment.

Pathology.

Leaving out the question of just where pathology begins, we may describe the conditions resulting from gradually increasing obesity in three classes.

1. In the early stages there is a deposition of fat in the subcutaneous tissues, mediastinum, abdomen, pericardium, between the muscles, and in practically all the bodily tissues.²

2. As the supply of fat increases, the muscles, including the heart muscle, become infiltrated and somewhat weakened. The action of the heart and diaphragm are mechanically interfered with, and the result is the so-called fatty heart. New blood vessels are formed to nourish the fatty tissue³, and the amount of tubing through which the heart must force the blood is increased, thus increasing the work of the heart, and consequently raising the blood pressure³.

3. As the accumulation of fat continues, there is finally produced a condition of fatty, or fibro-fatty, degeneration of the heart and blood vessels, and skeletal muscles.⁴ In these cases the damage done is irremediable. The fat may be removed, it is true, but the damaged muscles, viscera and blood vessels can never be rejuvenated.

Sequelae.

Let us consider briefly some of the sequelae of this excessive accumulation of fat. Respiration is interfered with by the fat above and below the diaphragm, and oxygenation suffers. The heart is embarrassed and its work increased, both by the extra weight carried about by the patient and by the formation of new blood vessels in the fatty tissue. The blood pressure is raised. As the heart becomes slightly incompetent, there develops a congestion of the great viscera, and oedema of the dependent parts, with resulting interference with the capillary circulation. Two of the early signs of heart strain are nocturia (Strauss) and pitting of the ankles on pressure. Many of these patients are "bilious," which simply means that they are overloading their digestive apparatus, and the congested stomach, intestines and liver are protesting.

The congestion of the kidneys is manifested by a slight amount of albumen, rarely with a few casts, which disappears when the congestion is relieved, conclusively differentiating this condition from the chronic nephritis that these patients are so often accused of having.

Arterio-sclerosis may develop as a result of the increased blood pressure⁵, and atheroma from the deposition of fat in the musculature of the arteries. In extreme cases there may develop a cardiac cirrhosis of the liver, or chronic interstitial nephritis, from the long continued congestion of the liver and kidneys, or a degenerative myocarditis, due to the fatty degeneration of the heart muscle⁶. Diabetes, gout and a sort of vascular rheumatism, due to the impoverished blood supply of the relatively non-vascular tissues about the joints (Smith), are

frequent sequelae. A very common and relatively early complication is a mitral regurgitation, due to a slight dilatation of the heart and a stretching of the papillary muscles or mitral ring. A systolic murmur may often be brought out by a little exercise. In some cases this entirely disappears when the strain on the heart is removed.

A patient with slight dyspnoea, a little oedema of the lower legs, a little albumen in the urine, and a blood pressure too near the 200 mark, is often told by his family physician that he has Bright's disease, and must take a light diet, *i.e.*, he must eat very little meat, and live chiefly on bread, cereals, vegetables, milk and eggs. This is the worst possible treatment, as a diet of this kind still further increases the accumulation of fat, and aggravates the trouble.

Symptoms.

The symptoms of increasing obesity are those of increasing cardiac strain. We may divide the cases into three classes, corresponding roughly to the three classes made in the discussion of the pathology.

1. The first class are those with the early symptoms of heart strain—slight dyspnoea on exertion, noticed particularly on going up stairs, walking up hill, or after any extra exertion, such as running a short distance for a street car. The blood pressure is slightly elevated. These patients acquire an increasing reluctance to the taking of physical exercise, and as the habits of eating are fixed, there is a decided tendency to take on weight still more rapidly.

2. The second class comprises those who have dyspnoea on slight exertion, nocturia, and slight pitting of the shins on pressure, with markedly increased blood pressure. As these patients have a slight cardiac decompensation, with the accompanying visceral congestion, they are apt to be "bilious," and often go to the physician complaining of indigestion. They are sleepy, especially after meals, and apt to be quite averse to physical exercise. Many of them have rheumatic pains about the joints.

3. The third class are those with the marked pathological changes noted above. There is cyanosis, marked dyspnoea on the slightest exertion, perhaps orthopnoea, and cardiac asthma—in short the classical symptoms of a badly broken cardiac compensation, with degeneration of the myocardium. The blood pressure may be high, or if there is much dilatation of the heart, it may be below normal. There may be sugar in the urine, and there will assuredly be albumen, and probably casts. Ascites may be present if there is a cardiac cirrhosis.

I want to emphasize the point that all of these conditions may develop without any other predisposing factor than the strain on the vascular system and great viscera from excessive and long continued obesity. The end result is a so-called cardio-renal complex.

Diagnosis.

The diagnosis of obesity is made with the office scales and measuring rod. Any marked excess of weight for a given height is obesity. The tables used by the insurance companies⁷ are useful as average figures, but the build of the patient should be taken into consideration. The large-boned, broad-shouldered type should be allowed more weight for a given height than the small-boned, narrow-chested type.

Prognosis.

The prognosis is good for class 1 and class 2 for an absolute cure, if the superfluous weight is removed. Class 3 may be relieved, but the ultimate prognosis is bad. Very stout patients who have not developed marked symptoms are frequently told by physicians that there is no need of reducing as long as they feel well. This doctrine tends to overcrowd class 3. Any great excess of fat should be immediately removed, before the vascular system and great viscera undergo degenerative changes.

Treatment.

The treatment of any obese patient is an individual and specific problem, and must be prefaced by a careful study of the dietary and other habits of the patient. Chronic disease must be diagnosed or ruled out, as we must vary our treatment according to the presence or absence of chronic nephritis, diabetes, serious heart trouble, etc.

The general indications are:

1. To reduce the caloric intake, and
2. To promote oxidation.

Contrary to the statement frequently made in the text-books, advanced age is not a contra-indication for reduction. There is no age limit that we have to consider in the treatment of obesity⁸.

Diet.

PROTEIDS. The amount of proteid given is the first and most important consideration. As the carbohydrates and fats are cut down the proteids must usually be increased to maintain nitrogenous equilibrium. If the kidney function is normal, there is not much danger of a patient taking too much proteid. Chittenden demonstrated that a person of average size may get along on 40 to 50 grams a day⁹, but did not demonstrate that 90 or 100 grams is harmful.

FATS. The fats are reduced. Cream and the fat of meats are prohibited. Small amounts of butter and cheese may be taken. The leaner meats are ordered—veal, lamb, white meat of chicken or turkey—and beef, mutton, goose, etc., allowed occasionally for variety.

CARBOHYDRATES. Sugar, pastry and sweets are prohibited, and the patient is encouraged to get over the sweet habit, if he has it. Bread of all kinds is given very sparingly, and the patient is taught to eat in its place potato, and fruits and vegetables of low percentage carbo-

hydrate content. The patient may be assured that if he will adhere strictly to his diet list, he will soon enjoy his food just as well as he did under the old régime.

If the patient is very fat and very oedematous with considerable dilatation of the heart, he should be put to bed for one or two weeks, and be given eight ounces of skimmed milk every 2½ hours, with the whites of 4 to 6 eggs, and some cooked fruit added each day. The oedema disappears in a surprisingly short time, and the weight will drop from one to two pounds daily. Solid food should be given three or four days before the patient is allowed to sit up. On the ordinary diet the patient should lose on the average about two pounds per week.

Drugs.

Drugs are of little use in taking off weight. In some cases small doses of thyroid may be given, but it is a dangerous drug, and should never be given unless the patient is under close observation. Ovarian extract and potassium iodide are not of much use, in my experience. In the cases with cardiac disease, digitalis, and the other heart stimulants are indicated just as in any patient. Cathartics should be used with judgment. Violent catharsis is never indicated. Patients with oedema may be given moderate doses of the salines with benefit. Patients without oedema need no cathartic if the bowels move daily.

Exercise

Most of the obese patients should take very little exercise. If we remember that all of these patients have overtaxed hearts, we shall see the logic of limiting their exercise until at least part of the superfluous fat is removed. When the heart becomes entirely compensated light exercises may be prescribed.

Baths and Spas

A cool sponge bath with a brisk rub down should be taken on arising, and a tepid bath on retiring. These act as mild vascular stimulants, and promote oxidation. Spas are never indicated for therapeutic reasons. The same, or better, results may be obtained at home. "Boiling out" at the hot springs, or the vigorous catharsis at the sulphur springs, are not important factors in reducing adiposity. The spas that obtain good results in these cases have a carefully regulated regimen of diet and exercise, which is the important factor.

In General.

There are some general considerations that I wish to mention in the treatment of these cases.

Hypertension.

I have already mentioned the effect of adiposity on blood pressure. The increased weight, carried by the patient, the formation of new blood vessels in the fatty tissue, the mechanical interference with the heart and diaphragm, and, in cases with oedema, the interference with the

capillary circulation, seem to be the main factors in imposing extra work on the heart, and hence the immediate causes of the hypertension. As these causes are removed, the blood pressure falls as a matter of course. If it does not fall, there is present some trouble other than obesity—chronic nephritis being the most common one.

Individual Treatment.

Each patient must be considered as an individual. There are no general rules that apply to all patients. Careful study of the case, and an intimate knowledge of food values¹⁰ and general metabolism, are indispensable factors in successful treatment.

Every patient should be supplied with a written list of instructions, and the lists should always be made as liberal as is possible under the given conditions.

Psychic Factor.

The psychic factor must not be neglected. Get the patient to make a fad of following instructions to the letter.

Lastly, when things don't seem to be going right, find the reason—there always is one.

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- ¹⁰ Locke's "Food Values" is a complete and valuable compendium.

THE RELATION OF ALCOHOL TO ACCIDENTS.*

BY WILLIAM J. BRICKLEY, M.D., BOSTON,

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THERE are about 40,000 patients treated each year at the Haymarket Relief Station. These patients come from the emergencies arising in three general groups. There is the Industrial Group, the Transportation Group and the Residential Group.

The Industrial Group, in a general way, includes shops and manufacturing. Here, in the heart of Boston, there are no groups of factories such as are found in Lynn and Brockton. There are no groups of mills such as are found in Lowell and Lawrence. But there are many separate shops and factories. Numerous candy factories, tailor shops, metal-working shops, etc., are in the district covered by the hospital.

The carriers comprise the Transportation Group. These are the elevated, surface and sub-

way railways, railroads, waterborne transportation, both freight and passenger, and the street traffic. The district covered by the Relief Station extends from Sullivan Square, Charlestown, to, and beyond, the new Commonwealth Docks in South Boston; and from Park Square to the North End waterfront. During each working day there are over 600,000 people in this district. The South Station handles 200,000 passengers each working day; the North Station handles 100,000; the Park Street Subway handles 96,000; the Sullivan Square Station handles 130,000 each working day. There are ten miles of busy waterfront in this district, with numerous steamship lines. The Boston harbor excursionists numbered 1,086,000 passengers in 1912. One harbor steamship line alone carried almost 900,000 passengers that year.

The transportation on our city streets, whether motor, horse drawn, or foot passenger, moves under the disadvantages and dangers attendant upon congestion in narrow, crooked streets.

Under the Residential Group are included the homes. These vary widely. Beacon Hill, North End, Chinatown, and Charlestown all lie within the district. Other hospitals care for some of the emergencies, but the Haymarket Relief Station cares for most of them.

With this brief survey of the scope of our field, we can now consider the relation of alcohol to accidents as it has come under our observation.

It may be stated, based upon our experience, that:

- a. Alcohol causes accidents.
- b. Alcohol obscures the diagnosis.
- c. Alcohol increases the danger of infection at the time of the accident.
- d. Alcohol prevents adequate treatment.
- e. Alcohol increases the danger of intercurrent complications.
- f. Alcohol retards the process of repair.
- g. Alcohol gives a poorer end result.
- h. Alcohol increases the mortality in accidents.

a. Alcohol causes accidents.

Under the influence of alcohol, a man falls on the sidewalk, or from a wagon, and injures himself. The probability is present, but extremely small, that he would have so injured himself if he had not been under the influence of alcohol. A longshoreman improperly slings a package of merchandise which falls and injures himself or his workmates. A carpenter improperly fastens a scaffolding which collapses and injures himself or a person passing by. Again, a teamster or a chauffeur, while under the influence of alcohol, injures himself or others in the highway. The intoxicated person turns off the gas in the bed room, then accidentally turns it on. Gas poisoning, explosion or fire follows.

* Read at the annual meeting of the Massachusetts Society of Examining Physicians, Boston, Dec. 19, 1914.

b. Alcohol obscures the diagnosis.

When certain types of injury are suffered by a patient while under the influence of alcohol, it is impossible to make a full diagnosis until the effect of the alcohol has passed off. With contusions of the head producing concussion or contusion of the brain or other intracranial injury, it is impossible in the presence of alcohol to localize or to estimate the extent of the injury. Fractures of the skull associated with alcohol present the same difficulty.

Abdominal injuries are obscured by alcohol. Beginning peritonitis from perforated gastric ulcer or from ruptured abdominal viscera cannot be discovered at once. Three different patients were brought to the hospital days after an injury received while intoxicated, suffering from ruptured bladder. Each was moribund at entrance. Autopsies showed that the condition might have been easily relieved surgically if seen early. The intoxication had obscured the condition.

Alcohol obscures the diagnosis where poison has been taken either accidentally or designedly. Such poisons as would give a distinct odor to the breath may be covered up by the odor of alcohol, and their effects are obscured by the same agency.

The diagnosis of deep-seated trauma of joints or muscles is always obscured to a degree by alcoholic intoxication.

c. Alcohol increases the danger of infection at the time of the accident.

When a man is intoxicated, he does not take proper care of his wound. In his stuporous or irrational attempts to aid himself, dirt and infection enter the wound; or he breaks the skin over a fracture and thereby changes a simple injury into a dangerous one. For example: a drunken man walked about with a compound fracture of the ankle which had the bones protruding through the flesh. He had been walking in the street in that condition.

The intoxicated person permits great blood loss which weakens vitality and makes infection easier.

Another example is that in which a teamster under the influence of alcohol, steps on a rusty stable nail, takes no care of what the ordinary man in his senses would know to be a possible serious accident. Later, infection and maybe tetanus develop from a neglected injury.

d. Alcohol prevents adequate treatment.

Intoxicated persons do not realize the necessity of proper cleansing and suturing of wounds. They do not realize the necessity of proper reduction of dislocations, and reductions of fractures. They do not realize the necessity of proper operations to discover or to repair injuries. Hence, they do not permit the best treatment. No surgeon wishes to assume the legal risk of operating upon an unconscious or upon an irrational patient; therefore, the case waits

and receives palliative treatment only until the patient is sober or until consent for operation is obtained from the proper authority. This interval of delay is often enough to turn the scale against the patient. One case that we recall on this point is that of a man who received a compound fracture of the humerus while drunk. He refused proper treatment and by his own actions made a serious matter worse. He spent over a year in an acute hospital, most of the time in bed and all of the time in pain. He had seven operations under ether and finally got an atrophied, weak arm, when all the humerus had been removed.

Alcoholics cannot or will not swallow drugs as antidotes for poison or for purposes of stimulation. Many alcoholics are quarrelsome and restless. Many persist in undoing the work which the surgeon does for them. They remove plaster casts, or remove splints; they will not tolerate rectal-saline. They hurt themselves in their efforts to get up out of bed, thereby causing secondary injuries to the already injured tissues. They dislocate again the fragments; they tear open the wound, whether such wound is accidental or operative. Until the patient is out from under the influence of alcohol, treatment may not be begun, and certainly cannot be maintained, if such treatment involves uncomfortable or unusual positions or unusual surroundings.

e. Alcohol increases the danger of intercurrent complications.

The injured alcoholic in the wards or at home is far more likely than the sober man to have intercurrent complications. He is far more likely to have secondary hemorrhage, refractures, displacements of fragments. The alcoholic whose vitality is already low by over-indulgence in alcohol, when attacked by what would be an ordinary bronchitis, speedily develops an oedema of the lungs or pneumonia when confined in bed. The alcoholic frequently cannot tolerate necessary feeding, because of alcoholic gastritis. Therefore, the vitality of the patient suffers because proper food cannot be given.

Delirium tremens is a frequent accompaniment of fractures in alcoholics. There may be present only an oedema of the brain, which leaves the patient just irrational enough to attempt movements with the broken bone, or wish to sit up when he should lie still, or to seek to change apparatus which should not be disturbed. Or, the delirium may become so violent that all proper apparatus must be removed, and the patient treated solely for the general condition and at the expense of the local condition. The local results obtained in such cases are not good. Those alcoholics who, because of a small accident are confined to bed, frequently develop pneumonia. With the delirium due to alcoholic oedema of the brain, comes the delirium due to the pneumonia. A delirium tremens patient who develops pneumonia has about 17 chances in 100 of getting well by the ordinary hospital

method.[†] This is not surprising when we consider that those who develop delirium tremens are exhausted and poisoned from the use of alcohol even before they are called upon to combat the toxins of pneumonia. Such patients are likely to keep on their feet until they collapse or are injured.

Accidents that would be trivial, or not especially serious of themselves, become extremely grave because of the pre-existing condition of the patient. In the case of the chronic alcoholic we find the conditions favorable to cause trivial accidents to terminate fatally.

f. Alcohol retards the process of repair.

Any surgeon who has had experience in a large general hospital recognizes that accidental or operative wounds do not heal so quickly nor so well in the alcoholic as in the clean non-alcoholic adult. This retardation of repair is especially marked in injuries to the bones. It is fair to say that the hard drinker takes about 20% longer time to make repair from fractures of the large bones than the non-drinker takes for a similar injury. Lack of proper reduction and fixation where the patient is likely to develop delirium tremens or any grade of the same also causes retardation. One cannot apply proper splints to save severed tendons or severed muscles and cannot maintain the part in fixed unusual positions, when the patient is likely, thereby, to be irritated into an attack of delirium. The surgeon cannot keep the patient quietly in bed for the sake of the injury if the patient's general condition demands that he be sitting up or walking about. Therefore, the process of repair is delayed in starting and the process of repair is slowed down because of the toxic condition of the hard drinker. One must treat the general condition first, then the local condition; whereas in the clean adult, one can attack the local condition at once and adequately.

Because of longer periods of fixation of extremities and of longer periods spent in bed treatment, a greater amount of muscle atrophy and a lessened amount of joint mobility certainly appear. As both of these conditions require time and perhaps manipulations to overcome, they retard the convalescence.

g. Alcohol gives a poorer end result.

Because of delayed primary care of the injury and of deferred adequate treatment, time is lost and the risk of complications is increased. Because the physical condition of the hard drinker is already poor from gastritis or cirrhosis of the liver, or nephritis, etc., the shock and the stress of the accident bear harder upon him than upon a teetotaler. Because the duration of repair is lengthened in the alcoholic, more time is lost.

After the acute phase of the injury is over, and the patient has left the hospital, he seeks to

recover his strength in order to go to work. In this period the patient, who has necessarily been abstinent during the acute phase of his injury, is quite likely to over indulge in alcohol during the convalescent period. He takes a drink to "strengthen" himself, or to relieve his discomforts. This is dangerous for him, and frequently leads to partial or to complete reinjury. For, being in a weakened condition from confinement and from injury, he cannot stand anywhere near his usual potation. If he attempts it, he becomes intoxicated.

The effect of heavy drinking upon a healing wound is very noticeable. Wounds that have almost healed break down and open again. Open wounds increase their discharge, while the edges of varicose ulcers, etc., seem to melt away. Some of this condition is due to the improper strains or to neglect of person or to exposure to which the drinking man subjects himself. An ordinary man lightens his work if he has a pain in a recently healed bone, or about an injured joint; but an alcoholic takes a drink for the same condition and goes on. An ordinary man protects his wound following a partial recovery, but an alcoholic takes a drink and forgets about it. This tends to make the injury chronic. Therefore a poorer end result certainly follows. We get a 60%, 70% efficiency of the part following the injury where we have a right to expect 80% or 90% efficiency with the resources at our command, and the treatment we are able to carry out if conditions permit us to do so.

h. Alcohol increases the mortality in accidents.

By obscuring the diagnosis, alcohol defers proper treatment. This delay diminishes the patient's chance for life when the real conditions are discovered. By increasing the risk of infection, or by neglecting the beginning of the same, a condition is permitted to arise which aggravates the injury and lessens the chance for life.

Alcoholics do not bear surgical shock well. After traumatic amputations and severe lacerations, a longer time is required to bring them back to an operable condition. This necessitates deferring urgent operations. Alcoholics do not live so long after being injured as abstainers do; which is another way of saying that their vitality is less.

The records of the Haymarket Square Relief Station for the year 1911 show that there were 199 patients who died there. Of these deaths, 19 were patients under 21 years. Of those adults who died as the result of accident that year, 38.2% were under the influence of alcohol when they entered the hospital. Of those adults who died by disease that year, alcohol was noted in 36.3%.

In the summer of that year there were 1,082 cases associated with heat, treated here. It was very noticeable that the chronic alcoholics were more prostrated and had a higher mortality than the abstainers.

[†]In fifty-three cases of delirium tremens patients who developed pneumonia, forty-four patients, or eighty-three per cent., died. This was over a four-year period at the Haymarket Relief Station.

In the year 1912, there were 191 deaths, of which 168 were adults. Of the adults who died because of accident 33% were under the influence of alcohol when they entered.

In the year 1913, there were 169 deaths, of which 158 were adults.

Of the adults who died because of accident that year, 48.4% were under the influence of alcohol when they entered.

In the year 1914, there were 132 deaths, of which 110 were adults.

Of the adults who died because of accident that year, 43% were under the influence of alcohol when they entered.

Practically all the severe accidents seen here are fresh,—minutes old, usually. So that, if alcohol is present at entrance to the hospital, it was present at the time of the injury. Great care is exercised to exclude doubtful alcoholic diagnoses and cases in which alcohol was given subsequent to the injury. No such cases appear in the above statistics. Nor is alcohol noted down in all the cases in which it is present. It is noted down only when, being present, it requires treatment or enters into the estimate of the rationality of the patient. It is not entered in the records for statistical reasons, but solely for purposes of treatment.

Many cases are gravely injured or moribund at entrance. The presence of alcohol under such conditions is an unimportant detail, and would be of no service in the treatment. Thus it happens that alcohol is not mentioned in the records even when we are sure it is present.

Not all the injured received here who die from their injuries die in this hospital. They are kept in the Relief Station only long enough to permit their safe removal elsewhere for further treatment. Thus many patients die from their injuries after they leave here. Such deaths do not appear on our records at all.

From these facts, it can be seen that the number of those who are injured while under the influence of alcohol, and who die because of their injuries, is much larger than our records would show. From the records, however, we can say that 40.6% of those adults who died here from accidents during the past four years were distinctly alcoholic at the time of the injury.

ACIDOSIS IN CHILDREN.*

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THE literature credits Nauyn as being the first to clearly describe the condition of acidosis as

* Read at a meeting of the New England Pediatric Society, held January 29, 1915.

being the result of the pathological production of acids in the course of metabolism.

Pfaundler and Schlossman credit Giliberti with the term recurrent vomiting.

The earliest reported case of recurrent vomiting was made by Dr. Cuicere in 1841.

Dr. Gee of London in 1882 contributed the first paper in English on the subject, reporting nine cases. Von Jaksch in 1883 is said to have been the first to demonstrate acid substances of the acetone series in the urine (in diabetic urines). Recent literature by writers of various nationalities abounds in articles on the subject of recurrent vomiting.

In the literature and pediatric text-books the attention given the subject of acidosis is confined largely to a consideration of recurrent or cyclic vomiting. A great deal is said, with wide differences of opinion, about the possible etiology, but the practical clinical aspect of acidosis it seems to me has not received the attention which it deserves.

The number of infants and children coming under my observation in which acidosis has been accompanied by severe clinical symptoms has impressed me more and more strongly with the seriousness of this condition, and the practical importance of its recognition and treatment. I wish to distinguish this type of case from the cases giving a test for acetone without clinical symptoms so frequently met with in febrile conditions. In the last two years I have seen 64 cases of acidosis. Of the last 171 consecutive patients seen, ranging in age from one day to twelve years, irrespective of the reason of the visit, 31 have had a definite acidosis. These cases include only cases in which there was marked clinical evidence, as well as an acetone odor to the breath, and a positive test for acetone in the urine.

Sex did not seem to play an important part in this series. Of the 64 cases, 30 were male and 34 were female.

As regards age, my experience has differed from most writers in that the cases seen under two years have been about as frequent as those seen over that age. Of the last 31 cases 20 were among 103 babies under two years, 11 being among 68 children from two to twelve years. The youngest cases seen were a baby four days and 2 babies five days to one week. The oldest cases were a boy ten years and a girl twelve years. Some of the cases seen with a first attack when less than two years old, have been seen with a subsequent attack at an older age. Classified by attacks instead of cases, there is a more definite predominance in favor of the age above two years.

As regards environment, my impression is that although acidosis is more common among children living in good circumstances, it is far from being confined to that class.

Again, as regards temperament, rheumatic tendencies, etc., although many of the cases have been in families or children of a nervous type, or

showing at some time evidences of the rheumatic cardiac, choreic tendency, there have been many exceptions.

The next point which I wish to make is, that while it has been my experience that acetone acidosis in childhood is of frequent occurrence, the common clinical type met with is what might be called a complicating acidosis with obvious predisposing factors. While the recurrent vomiting of the text-books, as distinguished by absence of obvious predisposing or causative factors, is extremely rare if, indeed, it exists. Of the 64 cases in this series, but one case had attacks except as the result of demonstrable complicating or predisposing causes. That the one case which failed to show clinical evidence of these causes had, nevertheless, sufficiently definite predisposing etiological factors, is very clearly shown from the following brief summary of the cases.

L. Female of 6 years. Past history: full term, no feeding troubles. Severe intestinal indigestion at 3 years. Measles at 4 years. Seen August 2, 1913. Perfectly well until 3 days previous had loss of appetite, nausea, vomiting without change in diet or obvious illness. Bowels had moved daily. The child showed an acetone breath and acetone, plus diacetic acid in the urine. Had similar attack in December, 1912; June, 1913; July, 1913. Vomiting not present each time but "peculiar breath" and distaste for food. Confined to bed each time from 3 to 5 days. Diet: Unusually good; mother very intelligent and extremely careful in regulating life of patient, who was an only child. Child made good recovery and August 5 child seemed perfectly well. August 15 child had another attack. This attack similar to previous attacks and ran the same course until August 17; child had slight temperature, increasing gradually to 102. Previously normal to 100. Also very slight muscular spasm over appendix region. Child operated on that night. Operation disclosed two enlarged mesenteric nodules with band of adhesions compressing ileum to 1/3 calibre just above cecum and causing slight torsion of the ileum. Nodules removed, adhesions broken up and appendix removed. Pathological report stated mild catarrhal appendix, with no evidence of previous involvement. Mesenteric glands tubercular. Child made good convalescence. Has had splendid health and no subsequent attacks since operation 18 months ago.

The essential features of this case are strikingly similar to the case reported by Dr. W. S. Parker at the last meeting of this society, Dr. Parker's patient being a supposed recurrent vomiter, which Roentgen rays and bismuth meal and operation showed had stasis and general visceral ptosis. It is significant in this connection, it seems to me, that the various writers on the subject of recurrent vomiting differ so widely in their theories as to the etiological factors. Is it not possible that this diversity of opinion suggests a diversity of, let us say, predisposing etiological factors?

My own experience and a consideration of the literature leads me to believe that recurrent

vomiting without demonstrable cause is sufficiently unusual to indicate an extremely careful study of apparent cases for various possible predisposing causes.

It has seemed to me evident that there are many pathological conditions which are capable of precipitating an attack of acidosis.

Acute infections have been the most frequent complicating conditions in the acidosis cases coming under my observation. The site and apparent severity of the infection has not seemed to be of consequence in the production of, or severity of the acidosis. Tonsillitis, coryza, bronchitis, otitis media and infectious diarrhea have in the order named been the most frequent infections preceding an acidosis. Among other conditions noted have been intestinal stasis, intestinal intoxication, diarrhea, burns, difficult teething and acidosis following etherization and operation.

In some cases, as the result of the disease that preceded the acidosis, the child was apparently but mildly ill, with little or no elevation of temperature; in other instances severely ill with a temperature of moderate or severe degree. The acidosis that developed was as likely to be as severe in one case as in the other, mild in both instances, or develop in the case of the severe illness after the temperature had subsided and the patient was apparently convalescent.

That more than one factor may combine in causing an acidosis is suggested from the fact that a child known to be subject to acidosis may have an attack brought on by a cold when he is constipated. The same child may escape an attack repeatedly when suffering from a cold alone or when constipated and having no infection. Again, a baby having difficulty in teething over some little period, with more or less accompanying digestive disturbance, may escape an acidosis until he has an acute infection or becomes constipated. A child having a tonsillitis may recover from the attack, having a definite period of quiescence, have tonsillectomy performed and suddenly develop a severe acidosis. In other instances I believe that a moderate acidosis existing before operation is overlooked, and bad results in the way of collapse, etc., are encountered because of the presence of the acidosis.

Constipation has been the rule in a majority of the cases, the usual story being that the child's bowels had been regular until a day or two previous to the onset of the acidosis they became costive. That the constipation is not the only factor is indicated from the fact that the same child may have other attacks of constipation more marked than the one accompanying the acidosis, without an attack. Also some of the cases in this series developed an acidosis during the course or at the onset of a diarrhea or infectious diarrhea.

Certain children are apparently predisposed to acidosis, having repeated attacks from what are clinically slight predisposing causes. Of the 64 cases, 22 either have been seen in more than

one attack or give a definite history of repeated attacks.

That this predisposition is but a part of the story, however, seems evident from the fact that these patients often escape an acidosis when ill with the same disease that at other times has accompanied an active attack.

Again, of the 42 cases seen in one attack showing that they are capable of having an acidosis, not only do they fail to give a history of previous attacks, but some have been under observation for from one to five years without acidosis accompanying various infections and digestive upsets.

It would seem that the clinical evidence favored the view that these different conditions were capable of acting as predisposing factors to an upset in metabolism other than indigestion.

The clinical picture presented by this series of cases has shown marked variations as regards the onset, progress, severity and manifestations of the attack.

The usual development of the acidosis is a progressive one, with marked variations in the rapidity of the appearance and duration of the symptoms.

There are usually slight premonitory signs, such as loss of appetite, restlessness, irritability, or, if the child has been apparently convalescent from the accompanying disease, it seems suddenly not quite as well. Progressively, the mouth and lips become dry and slightly red-denied, there is abnormal thirst, increased excitability, an acetone odor to the breath, acetone in the urine, the respiration becomes more rapid and the child may have nausea to the extent of a positive distaste for food or violent vomiting may suddenly develop at this time or may be the first definite manifestation.

As the acidosis increases the patient changes from its irritable, excitable or hysterical condition and becomes listless, drowsy and apathetic. The slightly flushed face assumes an anxious appearance and the eyes look sunken; when disturbed the child is fretty and irritable, but soon drops off to sleep again, becomes more dull and hard to arouse, and then becomes unconscious. During this period the breathing becomes more rapid, shallow and irregular. The child sighs frequently, and the irregularity of the breathing may be of the Cheyne-Stokes type. In very severe or fatal cases the coma becomes deep, the breathing more irregular and shallow, the cyanosis more marked and the pulse, which has been moderately slow, quickens in rate and becomes of poor quality.

In 51 of the 64 cases vomiting was a symptom of greater or less severity. Of the 13 instances in which vomiting did not appear, treatment was begun at the first indications of nausea or as soon as the acetone odor to the breath and acetoneuria were noted, accompanied by increasing irritability, rapid respiration, etc. In some cases where vomiting was present as an early manifestation, it ceased after

the acidosis more fully developed. In other instances vomiting did not occur until late in the course of the attack, when the patient showed marked intoxication. Certainly in a majority of cases, however, the vomiting not only developed early but was most marked in the early stages of the acidosis.

The severity of the acidosis apparently varies considerably in the same patients in different attacks. Also it seems evident that certain children are more likely to have violent symptoms and a protracted course with each attack than is the course with other children.

The signs and symptoms of the accompanying diseases tend still further to vary and complicate the clinical picture in these acidosis cases. The most difficult interpretations to make that I have encountered have been to differentiate between the prostration and apathy of an intestinal intoxication or the toxicity produced by an acute infection, in contradiction to the apathy and unconsciousness of an acidosis when both conditions are present at the same time. For example: A girl of two years, giving a story of vomiting once or twice during the first day of illness became increasingly dull. She was seen on the fourth day in a semi-conscious condition with considerable prostration. Acetone breath and acetone urine were noted. The stools from the first had been rather frequent, green in color, with some mucus following cathartic. Soda bicarbonate and glucose solution were given, with child showing complete return to consciousness in 24 hours. Prostration and general condition did not show any marked improvement. Second day after the child's mental condition had cleared, blood and pus appeared in the stools and the child ran a fairly severe course of infectious diarrhea.

I wish to emphasize in this connection the importance of the early recognition and treatment of acidosis on the basis of its being a serious complication. In nearly every case of acidosis seen in consultation, where the acidosis had not been noted, the reason for the consultation was that the child seemed more ill than the physical signs of the recognized disease warranted. An untreated acidosis accompanying a mild illness is likely to produce a pretty sick and uncomfortable patient, with the results of treatment of the recognized disease far from satisfactory. An untreated acidosis or one that is well developed before treatment is begun may, I feel sure, in a severe illness be the real cause of a fatal outcome.

Among the 64 cases considered there were 3 fatalities. Two of the three were from clinical evidence not justified by the illness uncomplicated by acidosis. The third case, a moderately sick pneumonia in a girl of three years, which involved but one side of the chest, developed an acidosis on the fourth or fifth day after the onset of the pneumonia. The acidosis was untreated for at least 36 hours. Had the acidosis been recognized and treated it would seem that

the child might have successfully coped with the pneumonia.

From the standpoint of getting results in the treatment of a disease, as well as the more serious consideration of the added danger, the recognition of a complicating acidosis warrants prompt attention and adequate treatment. Even if the symptoms accompanying the presence of an acetone breath and acetone urine are extremely mild, and regardless of whether or not acetone is normally present in the urine in small quantities or is frequently present in febrile conditions without clinical symptoms, it seems to me that treatment is indicated; first, because we do not know how suddenly severe and serious symptoms may develop, and, secondly, because the early treatment is much more simple and effective.

Because of the bad results frequently encountered following etherization and operation when acetone is present, acidosis is of special practical importance to those performing even minor surgical operations.

It is beyond the scope of this paper and the knowledge of the writer to enter into questions of the actual production of acidosis or consider what members of the acetone group are most active in the production of the intoxication, or speak of the possible part played by carbon dioxide in the production of the symptom complex of acidosis. These are problems that deserve active consideration and investigation, as a better knowledge along biological-chemical lines should prove of value in directing treatment and instituting prophylactic measures. From a purely clinical point of view it seems probable that acidosis is a definite result of faulty metabolism, induced by numerous predisposing etiological factors, acting singly or collectively.

The treatment of acidosis in the absence of more accurate knowledge, should be directed toward neutralizing the acid intoxication, alleviating its symptoms, and removing, as far as possible, predisposing conditions. The patient should be placed in bed and kept as quiet and free from excitement as possible, the intestines should be promptly and thoroughly emptied. Even in the absence of vomiting, it seems a rational proceeding to stop all food, including water, until medication has been continued for a few hours. If vomiting is present even liquids, except in extremely small quantities, should be withheld until it stops. The combined use of soda bicarbonate and glucose has in my experience been more effective than the bicarbonate alone. If the acidosis is at all severe the first doses of soda should be fairly large and given at frequent intervals. A convenient plan is to give the soda every two hours, alternating with glucose. The medication is to my mind much more effective when given by mouth. The fact that the child is retaining nothing—even water being regurgitated at once—does not indicate that the medication cannot, in the majority of cases, be successfully given by mouth. If abso-

lutely nothing is given by mouth for a few hours except teaspoon doses of the prescribed medicine, the child experiences difficulty and a rapidly declining inclination to regurgitate the medicine. In many cases one, two or no doses are lost. After medication has been given successfully two or three times the child will usually retain water in teaspoon doses or be able to suck cracked ice without vomiting. Food should be started with caution, both as regards quantity and composition. I have found a barley lactose solution a convenient stepping-stone for both babies and older children. Fair amounts of carbohydrate, moderate proteids with gradual introduction of fats, have proved satisfactory in increasing the diet of the babies and older children.

As a prophylactic measure in children with repeated attacks of acidosis, I have secured good results by having the mothers start acidosis treatment, including cathartic, soda bicarbonate and light carbohydrate diet, at the first indication of the onset of any illness. In some instances even with this treatment, the child has developed mild evidences of acidosis, but in no case a severe attack, the vomiting being either entirely avoided or very mild in character and of short duration.

The principal points which I wish to emphasize as a summary are:—

1. That acidosis in children is of frequent occurrence.
2. That recurrent or cyclic vomiting, as distinguished by absence of predisposing factors is extremely rare. Cases apparently of this type should be subjected to careful study for possible concealed pathological conditions.
3. That the common clinical type of acidosis is what might be termed a complicating acidosis with predisposing factors.
4. That clinically there are numerous conditions which seem capable of acting as predisposing etiological factors in the production of an acidosis.
5. That acidosis should be considered a serious condition.
6. That the early recognition and treatment of acidosis is of practical clinical importance.
7. That prophylactic measures are indicated and practical.
8. That a more thorough understanding of the biological-chemical processes producing acidosis should prove of real value in the scientific treatment of the disease—which should be considered of definite clinical importance to both general practitioner and pediatrician—acidosis in children.

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THE PARENTERAL ADMINISTRATION OF HORSE SERUM IN CASES OF HORSE ASTHMA.*

BY J. L. GOODALE, M.D., BOSTON.

IN January, 1914, I reported a series of cases of horse asthma and horse fever, and described the local skin manifestations occasioned by the application of horse serum to a scratch. Since then additional cases have come under observation, which have confirmed the previous results with reference to skin reaction. In the following paper I wish to describe some attempts to effect a resistance in such patients to the neighborhood of horses by the parenteral administration of horse serum.

The results obtained in conditions of proteidization to other proteids have been so encouraging as to suggest the probability of their attainment in these instances of horse fever and horse asthma. It remains, however, to be determined whether the internal administration is practicable, or whether the serum is best administered subcutaneously. In two cases an attempt was made to immunize the patient against horses.

CASE 1. The results obtained in this case are merely placed on record without attempting to draw conclusions, as the evidence appears to be inconclusive. The previous history of this case appears in my paper "Studies Regarding Anaphylactic Reactions Occurring in Horse Asthma and Allied Conditions" as Case 2. The essential points are here reproduced: "Mrs. B., 30 years old. For ten years the neighborhood of horses has produced sneezing, more severely of late, and accompanied by a sense of constriction in the chest. The general health is otherwise good. Horse serum applied to a scratch on the skin produced in six minutes considerable reddening and edema without the marginal white line of the preceding case. In the nose the serum gave no result. On the following morning the skin test was repeated with the same serum, without exciting any local reaction whatever."

The patient was then given one-tenth of one per cent. solution of horse serum to spray into the throat once daily, increasing at the end of two weeks to a one per cent. solution. The spray produced little or no subjective discomfort, at least no symptoms beyond occasional difficulty in breathing were noticed. Six months later the patient reported, saying that she had used the spray about a month, and that she felt considerable increase in her resistance when in the neighborhood of horses. A test of the serum on the skin produced no re-

action. The evidence seems to me here too scanty to justify conclusions.

CASE 2. Miss W. Reported in the same paper as Case 1. Essential data here reproduced. Twenty-eight years old. Asthma more or less constant throughout year, increased in the neighborhood of horses. "Has been under observation for six years. A large cystic right middle turbinate was removed in 1909 without influence on asthma. Tonsils were removed for septic detritus four years ago. During past two years asthma has been much less troublesome, and she is able to drive behind horses, although the air of stable excites an attack."

The skin test gave a marked reaction. Attempts to accomplish an increase in resistance by spraying a ten per cent. dilution of horse serum had to be given up, owing to the supervention of severe asthma, but on resuming the serum spray in dilution of one to a thousand, it was possible to effect apparently an increased resistance, both to the neighborhood of horses, and to the reactions occasioned on the skin by the serum. Six months later the patient was again examined, as her asthma had become more severe, both in the neighborhood of horses, and also at other times without assignable cause.

The patient was again tested on the skin, and showed a highly developed degree of sensitization. The horse serum, obtained from the Massachusetts State Board of Health, in the form of diphtheria antitoxin, showed in 50% dilution, an edema of over one inch in transverse diameter, with hyperemia nearly encircling the arm, and accompanied by intense itching.

It was decided now to inject the serum subcutaneously, and tests were consequently made, with varying dilutions of serum. Numerous tests were made to determine the best preservative and diluent. Alcohol in fifteen per cent. dilution proved thoroughly efficacious, preserving the antitoxine from decomposition without precipitation of the albumin. It is interesting here to note that this alcohol concentration corresponds to that which can be attained by the development of saccharomyces in a sugar solution. Different dilutions were, therefore, prepared with alcohol in water, ranging from a one per cent. to a one in ten thousand, in all of them the alcohol being present in the preparation of fifteen parts by volume.

When these solutions were applied to scratches on the skin of the arm, a 1/100% dilution produced a slightly raised white area of edema about 1/8 inch in width; a 1/10% dilution showed edema one-half inch broad, with a narrow margin of hyperemia; these not being accompanied with itching; a 1% dilution showed extensive edema, marked hyperemia and itching. The patient was first injected two days later, Nov. 12, with ten minims of 1 to 10,000 dilution of serum. Nov. 14 the patient received 10 minims of 1 to 1000, and every two or three days serum in increasing doses. On the 20th, 4 minims in a 1% dilution were given. The skin reaction at this time showed a small moderate reaction, with a 1% dilution. Nov. 30 two minims of a 50% solution produced a moderate edema of the skin, without hyperemia or itching. The strength of the injections was increased until on the 11th she received 4 minims of a 50% dilution. At this time this dilution of serum caused slight hyperemia, and an edema of less than one-half inch in diameter.

The injections caused no discomfort or subjective sensations, but were followed in the course of two

* Read at a meeting of the New England Pediatric Society, held January 29, 1915.

¹ *Annals of Otolaryngology, Rhinology and Laryngology*, June, 1914.

hours by considerable firm, deep-seated edema in the vicinity, nearly embracing the arm, persisting for six or eight hours longer. The injections have been continued at weekly intervals for a period of two months (at the time of writing), each injection consisting of 10 minims or a 50% dilution of serum. Following each injection in the upper arm, a moderate edema appears immediately, increasing in the course of three or four hours, and causing an enlargement of the arm to about twice its normal circumference. The swelling is firm, elastic, without pain, tenderness, itching or hyperemia of the skin, and disappears in six or eight hours. During the last month, the size of this swelling has diminished slowly and progressively, from an original size of approximately a hen's egg, to now a size of a pigeon's egg. The introduction of horse serum into the nose causes no discomfort or vasomotor symptoms, which were so marked originally a year ago.

The patient's statements regarding horses are to the effect that she has no asthma when in their neighborhood, but that close proximity causes sneezing. Attention should in this connection be drawn to the fact that horse fever, *i.e.* sneezing, etc., caused by horses, may not show an anaphylactic skin reaction from the application of horse serum.

Summary. Consideration of the objective phenomena shows that this case with a high initial sensitization to horse serum has acquired in the course of thirty injections of progressively increasing doses of serum a determinable increase in resistance. This resistance is characterized by failure of the serum to excite hyperemia and itching when applied to the mucous membranes or to a scratch of the skin, although edema can still be produced by hypodermic injection.

Clinical Department.

GANGRENOUS EPIPLOIC APPENDIX.

REPORT OF A CASE.

By A. R. KIMPTON, M.D., BOSTON.

THE object of the following case report is to call attention to one more condition that may be encountered when operating for what is thought to be acute appendicitis. Not uncommonly patients have been operated upon for what appeared to be appendicitis, the appendix removed, and nothing further abnormal has been found in the abdomen. The pathologist returns a report of a normal appendix, and the surgeon frequently feels that something has been overlooked.

A man forty-two years of age was seen by myself at midnight for acute abdominal symptoms. For thirty hours he had been having pain in the lower right quadrant, which had been increasing. For the past four or five hours he had been having hot fomentations, with but slight relief. When seen by myself the patient had a great deal of nausea, almost to the point of vomiting. He had had one or two similar attacks which had been of very short duration. Bowels had been regular.

The physical examination showed the patient to be very obese. The heart and lungs were negative, temperature was 98.8, and pulse was 80. The lower right quadrant showed moderate rigidity and spasm with very marked point tenderness. With increasing symptoms it seemed advisable to remove the patient to a hospital and to operate.

A right rectus incision was made through a very fat abdominal wall. There was no free fluid in the abdomen, and no evidence of fat necrosis except the following: Upon examination of the region of the appendix an almost black appendage of fat presented itself. This was an epiploic appendix, which had apparently twisted upon itself. This was tied off and removed. The appendix itself was perfectly normal in appearance and was, likewise, removed. Exploration showed nothing further abnormal. The abdomen was closed in layers without drainage, and the patient had an uneventful convalescence with the exception of an ether bronchitis and some breaking down of the superficial fat in the abdominal wall.

The pathological report by Dr. Mallory was "Normal appendix. Fat tissue received was hemorrhagic and necrotic."

To me this condition, simulating appendicitis, was new, but I now know of two similar cases operated upon by other surgeons, and Dr. Mallory tells me that he has seen this condition at autopsies several times. Not uncommonly we find tabs of calcified fat, as well as pieces of calcified fat, free in the abdominal cavity which, perhaps, originated as did the condition in the above case.

This patient had every local symptom of an acute appendix and was operated upon with the expectation of finding this condition. This shows that under similar circumstances one would do well to bear in mind this possibility.

I have been unable to find reports of any such condition in medical literature.

Reports of Societies

NEW ENGLAND PEDIATRIC SOCIETY.

RICHARD M. SMITH, SECRETARY.

The meeting of Jan. 29, 1915, was held at the Boston Medical Library, the president, Dr. E. M. BUCKINGHAM, of Boston, in the chair.

The following papers were read:

ACIDOSIS IN CHILDREN.¹

By ARTHUR A. HOWARD, M.D., Boston.

PARENTERAL IMMUNIZATION IN CONDITIONS OF PROTEID SENSITIZATION.²

By J. L. GOODALE, M.D., Boston.

WEANING—ITS RELATION TO ANAPHYLAXIS AS SHOWN BY DIFFERENTIAL BLOOD COUNTS.

By H. C. BERGER, M.D., Boston.

¹ See JOURNAL, page 747.

² See JOURNAL, page 751.

DISCUSSION.

Dr. R. S. EUSTIS: Dr. Howard's paper. Dr. Smith has given me the privilege of examining and reporting on a number of urines which he has obtained during the past month, the total number being about thirty. No less than twenty of these showed a slight trace of acetone. These specimens were taken at random from patients who had no sign of infectious disease, any cold, digestive upset or sore throat. Of especial interest were the evidences of infectious character. There were three children in one family that came down, one after the other, with digestive disturbances, and each one of these showed a moderate amount of acetone in the urine. There was another instance of two children in one family at the same time; still another case where an older child has a history of recurrent vomiting, the patient merely becoming out of sorts and cranky. The mother told Dr. Smith that if it had been the older child she would have started soda bicarbonate several days prior to the visit; as it was she waited, and we took some of the urine and found acetone. Of these twenty acetone cases, certainly not over four could be classed in any way as recurrent vomiting, or were of an exceptionally severe type. There were ten which could be grouped roughly as digestive disturbances. There were several colds and two or three cases of tonsillitis. The whole thing was very interesting, as showing the frequency of acetone in the urine, during this winter, anyway.

Dr. J. L. MORSE: It seems to me that this whole question of so-called acidosis in recurrent vomiting is a very vexed one. My own impression is that the tendency in the last one or two years is to exaggerate the importance of the presence of the acetone bodies in the urine. My experience is that the acetone bodies are very commonly present in the urine of children and babies that are sick for any reason and that in the vast majority of instances the presence of these acetone bodies is of no pathological significance. We must remember that we are bound to find the acetone bodies in the urine whenever a child is starved, or even when it is partially starved. We must also remember that if there is a disturbance of the carbohydrate metabolism we are almost certain to get the acetone bodies in the urine. My experience leads me to feel that we can disregard the presence of acetone bodies in the urine unless there are other symptoms which show evidences of acid intoxication. That is, my experience has led me to an entirely different conclusion from what Dr. Howard's has led him. Recurrent vomiting I look on not as a disease but as a symptom-complex which may be due to a variety of conditions. One of the causes of recurrent vomiting I feel very positive is acid intoxication, and the reason that I feel so is that I have seen cases in which the acetone bodies were present in large amounts at the very onset of the disease. The finding of acetone bodies in the urine after a child has been vomiting for twenty-four hours does not show in any way that the acetone bodies are the cause of the attack of vomiting. I feel equally positive that other attacks of recurrent vomiting are due to other disturbance of metabolism. Sedgwick has shown that they are due to the disturbance of the creatinin metabolism, and Snow, of Buffalo, has shown fairly definitely that some are due to an excess of uric acid. I agree thoroughly with Dr. Howard that true recurrent vomiting is a rather unusual condition, and I see a

great many cases called recurrent vomiting which seem to me to be cases merely of recurrent indigestion. Why we should have these attacks of recurrent vomiting in certain children as the result of acid intoxication is a very obscure problem. The best explanation which I have seen is, I think, that given by Salge in the *Jahrb. f. Kinderheilkunde*, about a year ago, in which he, in view of his experience, came to the conclusion that they were due primarily to a disturbance of carbohydrate metabolism, but only occurred in children of a definitely nervous make-up, and not in the average child. I think that I was one of the earliest to advocate the use of bicarbonate of soda in the treatment of recurrent vomiting, but as I have seen bicarbonate of soda used in these cases I am not sure but what a good many of them have done as well with the older treatment advocated twenty years ago by Dr. Rotch with bromide and chloral by enema. I do not want to minimize acidosis, but I do feel that its importance is being exaggerated at present.

Dr. J. L. MORSE (replying to Dr. Porter): I do not know that I can tell exactly as to the effect of fatigue in these cases, but my experience has been in these cases of recurrent vomiting that if you got at any etiological factor at all it is much more likely to be over-exertion or over-fatigue than it is indiscretion in diet.

Dr. H. T. HANDY: I would like to ask the reader how long the recurrent vomiting lasts, if a child is supposed to outgrow it, or if there is any definite age after which it does not have it?

Dr. HOWARD, closing: In answer to Dr. Handy's question as to the age when the acidosis attacks may cease to appear. It has been my experience that the condition becomes less frequent after five years and quite rare after 10 years.

In regard to the remarks of Dr. Morse to the effect that the importance of acidosis is being over-emphasized and that most cases showing acetone breath and acetone in the urine are not serious; I doubt if there is any real difference of opinion. It has also been my experience that acetone is very frequently present without doing any particular harm. The type of case referred to in this paper, however, has shown definite and serious clinical manifestations and the condition has apparently warranted real concern. I feel that this more serious type of acidosis is of sufficiently frequent occurrence and seriousness to justify prompt consideration and treatment.

Dr. E. H. PLACE: This is a most valuable paper and rich in suggestion of the possibility of specific curative treatment of these conditions which have so long been resistant to beneficial management.

The value is great also of being able simply and easily to find out the specific pollens or other proteins causing these reactions. I was struck by the experience of the patient quoted by Dr. Goodale of being so sensitive to horse protein as to suffer attacks from being near hair mattresses. It suggests the old fairy tale about the princess who could feel a pea under seven feather beds might not be so ridiculous.

Seriously, it is marvellous how small an amount of the protein will bring on attacks. It is well known that in guinea pigs what infinitesimal doses will sensitize, but much larger doses are usually necessary to bring on a marked and fatal reaction. It is possible that the application of the intoxicating protein directly to the mucous membranes of the respiratory tract would cause reactions of this

type more readily than if the protein were injected under the skin, on account of local sensitization. Tissues may be sensitized locally under certain conditions without the whole body being so sensitized.

Dr. Goodale spoke of one of his patients being so benefited that she could ride behind her *favorite horse* without an attack. I should like to ask if the suggestion contained therein were true that this patient reacted more to some horses than to others?

We frequently notice of course in giving horse serum antitoxin for diphtheria, that the serum of some horses is worse than others in causing severe reactions.

I should like to ask if in any of this series of cases Dr. Goodale tried the cattle serum to see if any cases ever spontaneously reacted?

DR. GOODALE, in closing. I have not used any other horse serum than that supplied by the Massachusetts State Board of Health. Three lots were sent me at different times, and I can see no difference in the amount of the reaction caused, but it was not possible to make definite comparative tests. Wiedemann suggests the use of ox serum. He employed it in a case of diphtheria, which had previously received an immunizing dose of antitoxin. Fearing anaphylactic shock, he gave the child a drop of ordinary antitoxin from the horse with very nearly fatal result. He then tried giving it by mouth, but after 24 hours there appeared a delayed shock. He then injected ox serum antitoxin and the child was promptly relieved. It is said to be impossible to immunize an ox against diphtheria to the same degree of potency as the horse, but it is suggested that all Boards of Health have ox serum on hand in readiness for such emergencies.

WEANING—ITS RELATION TO ANAPHYLAXIS AS SHOWN BY DIFFERENTIAL BLOOD COUNTS.

An abstract of the paper read by Dr. H. C. BERGER of Boston.

At the suggestion of Dr. Fritz B. Talbot, following the work of Herrick, Johns, Schwenker and Schlert, Weinberg and Sequin and Schloss, on relation of eosinophilia to anaphylaxis, differential blood counts were made on weaning babies at the Massachusetts General Hospital and St. Mary's Infant Asylum.

Breast fed babies were given daily feedings of cow's milk, and babies previously on a modification of cow's milk were given sheep's milk, egg albumen water, or barley water. In practically all cases there was a marked increase in the percentage of eosinophiles present. The highest percentage usually appeared on or about the tenth day, and then rapidly returned to normal.

Babies fed on animal proteids showed a more marked increase in eosinophiles than those fed on a vegetable proteid.

DISCUSSION.

DR. R. C. LARRABEE: The results of Dr. Berger's blood counts must be interpreted with some caution, as the total number of cells enumerated in each case was apparently small. Normally the eosinophiles constitute about one per cent. of the leucocytes. In a differential count of 100 cells this would mean that only one eosinophile would be seen. Obviously a five-fold increase would be within the limits of possible chance variation between different counts

from the same smear. At least a thousand leucocytes should be counted in each case. If slight variations are to be considered, the number should be higher—perhaps even 10,000—a long, tedious undertaking. Moreover, what we want to know is the *number* of eosinophiles per cu. mm., not their percentage relationship to other cells. Hence we should have, besides differential counts, an enumeration of the total number of leucocytes per cu. mm.—an ordinary "white count." Otherwise we can not say that a rise in the percentage of eosinophiles is not due to a fall in the other cells. In spite of these criticisms it must be admitted that the uniformity and suggestiveness of the reader's results are evidence of the correctness of his technique.

DR. J. L. MORSE: I would like to ask the reader if he has made any consecutive examinations of the blood in babies that had been taking the same food, whether it was breast milk or an artificial food, as controls?

DR. E. H. PLACE: I understand that in most of these experiments the foreign protein was given once daily from the beginning and throughout; while in a few, single doses were given. Under both these conditions the eosinophilia occurred. It would seem from our knowledge of allergy in anaphylaxis that the reaction was simply a reaction due to the protein and that there was no evidence that sensitization occurred. In guinea pigs if the foreign protein is given daily, it indefinitely postpones the development of sensitization. The time of appearance of the eosinophilia being the same in these cases whether one dose or repeated doses, would suggest that eosinophilia has no relation to sensitization.

DR. BERGER, in closing: In all these cases not over 150 cells were counted, and in none less than 100 cells. I counted 150 cells in a good many normal children outside of this series and I never found an eosinophilia above 4%. I selected children with no skin diseases and in which there was no reason to suspect an eosinophilia. Dr. Schloss, some years ago, investigated a tremendous series of infants and counted a much higher number than 150 cells. He decided that anything above 5% would certainly be abnormal, but I think from some of his work since then that he would probably now put it somewhat lower than that. The way that these counts were made is that each day the infants were brought into the examining room in different order. The number was taken and the date put down on the slide and the slides were all counted, so that it was a mechanical procedure. I had no idea as to whose slide was being counted, or as to the length of time since the foreign proteid was started, and it was only after all the counts were made that the results were classified. After giving a foreign protein there is a definite period when sensitization increases. This is almost always on or about the tenth day. That is when the eosinophilic count is at its highest, that is probably when the climax of the sensitization has been reached, and from that point on the eosinophilia comes down and apparently the child is immunized. That is, he reaches the highest point of sensitization at or about the tenth day, if we can take the results of the work referred to earlier in the paper as a proper interpretation of the eosinophilia in our cases.

Replying to Dr. Morse's question; I have never run a series of controls on any one such infant.

Book Reviews.

Infant Feeding. Its Principles and Practice. By F. L. WACHENHEIM, M.D., Attending Physician Sydenham Hospital and Mount Sinai Dispensary, New York City. Philadelphia and New York: Lea and Febiger. 1915.

The author states in his preface that "this manual is designed to supply the practitioner with a reference handbook, of moderate size, in which he may find an exposition of the present theory and practice of infant feeding. The material here presented can be secured only by reading a vast journalistic literature which is extremely conflicting in its statements and of little practical use without extensive sifting."

The author's summary of the peculiarities of digestion and metabolism in infancy is fairly complete and up to date. His point of view is, in general, very reasonable. He comes out strongly in favor of breast-feeding and shows the objections to the use of undiluted cows' milk. He is not fair in his criticisms of percentage feeding, which he calls Rotch's method. He apparently fails to realize that the feeding tables which he quotes were prepared years ago, before our knowledge of the digestion and metabolism of infancy was as complete as it now is, and that no intelligent believer in percentage feeding follows any table or believes in any set "method" of feeding. Feeding in percentages is merely a method of calculation and a means of fitting food to the digestive capacity of the individual infant. It is not a system of feeding. After criticising other "methods" of feeding, the author gives a table of his own, which hardly seems consistent. He classes sodium citrate among the alkalies and is apparently unaware of the work of Bosworth and Van Slyke as to its action. He is very strongly in favor of four-hour intervals. He disregards the fact that infectious diarrhea is due to a variety of organisms and that the treatment should be modified according to the etiologic organism in the given case. He gives a very comprehensive review of the literature. He criticizes everyone, Americans and Germans alike, without fear or favor. We do not agree with all his conclusions, but feel that he has intended to be fair but is mistaken. The book affords very interesting reading. We fear, however, that although it is intended for practitioners no one but a pediatricist will really appreciate it.

With Sabre and Scalpel. By JOHN ALLAN WYETH, M.D., LL.D. Illustrated. New York and London: Harper and Brothers. 1914.

This picturesque volume of personal and public reminiscence, the autobiography of a soldier,

and surgeon, is an interesting complement to the recently published personal memoirs of Dr. John H. Brinton. Brinton was a Philadelphian and served throughout the Civil War in the Northern army in important posts as brigade surgeon and field medical director. He subsequently founded the Army Medical Museum at Washington. Dr. Wyeth, on the other hand, a native of Alabama, served throughout the war in the Southern army, though in the ranks and not in a medical capacity. Studying medicine after the war, he has led an active professional life and, as founder of the New York Polyclinic, has made important contributions to the progress of post-graduate medical instruction. The vivid personal narrative of Dr. Wyeth's experiences in the war and throughout his active and varied life, present an admirably contrasted picture to that drawn by Dr. Brinton of his experiences in the opposing army. It is chiefly for their contemporary record of the conditions prevailing on both sides of this great conflict that these two autobiographic volumes are of interest and value, not merely to physicians but to students of history. Not the least delightful part of Dr. Wyeth's volume is some of the verses printed at its close, especially the lines to his mother and the translation of Heine's verses to a flower.

The Cancer Problem. By WILLIAM SEAMAN BAINBRIDGE, A.M., Sc.D., M.D. New York: The Macmillan Company. 1914.

This volume is perhaps the most elaborate historical review and critical study which has yet appeared of that greatest of remaining pathologic problems, the riddle of cancer. After a careful sketch of ancient evidences of cancer, the author reviews the history of modern cancer research and the distribution of the disease locally and ethnically. He points out some of the fallacies of statistics of cancer and reviews at length the theories of its etiology and its histopathology. Next he gives a résumé of the world's work on cancer research and recapitulates the clinical course, diagnosis, prophylaxis and treatment of the disease. The final section of the work deals with the modern campaign of education for the prevention, early diagnosis, and prompt treatment of cancer. The volume closes with an elaborate classified bibliography of several hundred titles. It is well illustrated by thirty-nine full page plates and fourteen text cuts. As a summary and critique of the present status and prospects of our knowledge of cancer, Dr. Bainbridge's delightfully well-written volume affords interesting and profitable reading, not only for physicians, but for the educated laity.

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SUBTEMPORAL DECOMPRESSION FOR THE RELIEF OF CEREBRAL SPASTIC PARALYSIS.

IN a recent paper (*American Journal of the Medical Sciences*, for April) Dr. William Sharpe of New York writes of the advantages of the operation of cranial decompression for the relief of intracranial pressure from tumors of the brain, from fractures of the skull, from brain abscess, and from spastic cerebral paralysis. In regard to the last-named he explains that naturally the cases due to a lack of development or malformation of the brain and its pyramidal tracts are not suitable for operation, but claims as rightly operable those having a history of difficult labor, with or without instruments, in which, upon ophthalmoscopic examination, definite evidences of intracranial pressure are found in the dilated retinal veins, edematous blurring and haziness of the nasal halves of the optic disks, and signs of old intracranial pressure. These, he holds, can be improved by merely a

relief of the intracranial pressure. The local pressure effects of a hemorrhage, or its resulting cystic formation, are offset by the decompression; a bilateral decompression being performed if the intracranial pressure is high. If the hemorrhagic clot or its subsequent cyst can be removed, so much the better; but in many instances this is not possible. Of course, the longer the clot and its cystic formation are allowed to exert pressure upon the cortex, the more impaired do the cortical nerve-cells become; yet, in his experience of 65 operated cases, only five of them presented the hemorrhagic cyst in or beneath the cortex—that is, the cortical cells were not primarily destroyed, but merely impaired by the pressure upon them, as was the condition in 45 cases observed at the operation. Thus, the longer the intracranial pressure is permitted to continue, the greater will be their impairment; resulting in a persistent and even increasing stiffness and spasticity and, in the majority of instances, a steady mental deterioration. Sharpe's operative mortality in the 65 cases has been six. Four of the fatal cases, however, were of extreme spastic diplegia in children under two years of age who were much emaciated and had great difficulty in breathing and swallowing; a type of case which he says should not be operated upon, as the anesthetization alone is too great a risk. In the past, in these cases of spastic paralysis, attention has been centered upon the correction of deformities and the lessening of spasticity, and the improvement following upon the procedures employed has been only temporary in all but the mild cases. In the instances operated upon by cranial decompression great improvement has as a rule been noted, and although sufficient time has not yet elapsed since the first operation (June, 1913) to permit of a definite judgment, he believes that the improvement will prove permanent.

It is a fact, however, that Sharpe's conclusions have not been generally accepted by the neurologists. This was evidenced at the medical meeting in New York, when he made the first report of his cases and presented a number of the patients he had operated on. At that time the feeling was expressed that in his surgical ardor he had permitted himself to be deceived. Thus, Leszynsky stated that the hopefulness and enthusiasm as to cure in these cases of infantile cerebral palsy were not justified by the facts, and were based upon an erroneous assumption as to

the condition in the brain. The qualification had been made that the operation was done only in those cases in which "pressure upon the brain was shown by ophthalmoscopic examination." He felt confident, however, that upon further investigation the patients exhibited would be found not to come up to the required standard, as claimed, when subjected to a critical neurological analysis. It was true that the spastic hemiplegia was the direct result of meningeal or cortical hemorrhage over the Rolandic area, but the presence of a cyst, secondary to the hemorrhage, was merely a terminal condition. The paralysis, due to damage to the pyramidal tract, followed usually by secondary degeneration, was present for some time prior to cyst formation, and it was entirely unwarranted to assume that pressure from such a cyst was an important etiological factor in the paralysis. Hence, there was no rational indication for removing a portion of the skull for the relief of supposed intracranial pressure. He recalled that about twenty years ago the Lannelongue operation was in vogue—a procedure consisting in the making of long longitudinal furrows in both parietal regions, and based on the false idea that a normal brain is prevented from proper growth and expansion on account of premature synostosis. It was abandoned, as it failed to accomplish the desired results, and it was soon conclusively demonstrated that we were dealing with a defective brain. Dr. Sharpe had decried all other forms of treatment, as being directed only to peripheral conditions, and not to the source of the trouble; but he had admitted that the desired improvement required the aid of such measures subsequent to the cranial operation. As to the alleged mental improvement, it seemed to him that this was but temporary and the result of environmental changes, and also largely a matter of self-deception on the part of the mother. A similar state of affairs had occurred at the time of the vogue of the Lannelongue operation, and this was but a repetition of history. He, therefore, felt called upon to protest against this surgical plan of treatment in these cases, as being illogical and unsupported by a sound pathological foundation.

Another speaker raised the point that Dr. Sharpe had unjustifiably made the accoucheur the scapegoat for the mental condition of such patients as he had presented; stating that if for-

ceps delivery were the cause, we certainly should have many more cases of feeble-mindedness, idiocy and spastic paralysis than was now the case. The bones of the skull "shingled" when the head passed through the pelvic outlet, and the child's brain was so pliable that it could stand moulding into a long oval during birth. Flat-head Indians made pressure with a board on their babies' heads, to produce their characteristic form, but subnormal mental conditions were not noticed among them. The trouble was that these children's brains were born defective, and no operation short of implanting a new and perfect brain could make a perfect individual.

It is to be noted that in his paper Dr. Sharpe makes the announcement that a detailed report of his cases is to be published soon, and this will be awaited with interest. Although, as he himself acknowledges, sufficient time has not elapsed to establish the permanency of the improvement, in some instances, it has now been nearly two years since the operation, and if, in these, continuous improvement shall have been observed, it would seem to afford some justification at least for the procedure, whether the view advanced of the pathology in these selected cases of spastic paralysis is correct or incorrect.

PUBLIC HEALTH LEGISLATION IN RHODE ISLAND.

THERE has recently been in Rhode Island a definite legislative attempt to promote the investigation and control of occupation diseases in that state. On April 1, Dr. John G. O'Meara of Providence presented, before the House of Representatives of the Rhode Island General Assembly, the following resolution authorizing the governor to appoint a committee to study occupation diseases and to report to the next session of the Assembly:—

"Whereas, The employment of men and women in certain occupations is known to be attended with more than ordinary danger to health, giving rise to what is known as "occupational diseases," and

"Whereas, Unnecessary sickness and shortening of life, from whatever cause, is a serious loss and of grave concern to the state and to all the people, and

"Whereas, It is believed to be possible by public education, and by enforcement of proper measures, largely to prevent unnecessary sick-

ness and premature death among employees in various trades and occupations, therefore be it

"Resolved, That the governor is hereby authorized and directed to appoint a committee of six citizens familiar with occupational diseases to make a thorough investigation of the effect of occupations upon the health of those engaged therein, with special reference to dust and dangerous chemicals and gases, to insufficient ventilation and lighting, and to such other unhygienic conditions as in the opinion of said committee may be specially injurious to health, and to report to the next general assembly the results of such investigation, with such recommendations for legislative or other remedial measures as it may deem proper and advisable, and the sum of \$500, or so much thereof as may be necessary be and the same is hereby appropriated to pay the expenses of the investigation by said committee; and the state auditor is hereby directed to draw his order or orders upon the general treasurer for the payment of the same, out of any money in the treasury not otherwise appropriated, upon the receipt of vouchers approved by the governor."

This resolution, unfortunately, was not reported from the finance committee to which it was referred, but it is expected that the subject will be renewed next year. Meantime the Assembly has passed this year a bill (House No. 348) to require the reporting of certain occupation diseases. The diseases included in this act are specified as follows in the text of the bill:—

"Section 1. Every physician in this state attending on or called in to visit a patient whom he believes to be suffering from poisoning from lead, phosphorus, arsenic, brass, wood-alcohol, mercury or their compounds, or from anthrax, or from compressed-air illness, or any other ailment or disease, contracted as a result of the nature of the patient's employment, shall within forty-eight hours of such attendance send to the state board of health a report stating:

“(a) Name, address and occupation of patient.

“(b) Name, address and business of employer.

“(c) Nature of disease.

“(d) Such other information as may be reasonably required by the state board of health.

"The reports herein required shall be on or in conformity with the standard schedule blanks hereinafter provided for. The posting of the report, within the time required, in a stamped envelope addressed to the office of the state board of health, shall be a compliance with this section.

"Sect. 2. The state board of health shall prepare and furnish, free of cost to the physicians included in Section 1, standard schedule blanks for the reports required under this act. The

form and contents of such blanks shall be determined by the state board of health.

"Sect. 3. Reports made under this act shall not be evidence of the facts therein stated in any action arising out of the disease therein reported.

"Sect. 4. It shall furthermore be the duty of the state board of health to transmit a copy of all such reports of occupational disease to the chief factory inspector."

This act will take effect on July 1, 1915. The assembly has also passed a bill (House No. 136) amending the previous act of 1912 relative to the sale of wood alcohol, providing for the conspicuous labeling of all vessels containing wood alcohol and establishing a fine or imprisonment for the sale, or possession with intent to sell, of articles containing wood alcohol not so labeled.

Another act (House No. 166) passed by the assembly prohibits the manufacture or sale of adulterated, misbranded or injurious foods or drugs. By another (House No. 201) "in order to prevent the spread of communicable diseases the state board of health is authorized to prohibit, in such public places, vehicles, or buildings as it may designate, the providing of a common drinking cup and of a common towel."

These measures, which are analogous to similar legislative acts already established in some other states, are indicative of a commendable and alert concern in public health problems in Rhode Island, and their successful passage and enforcement should lead to further progress in similar directions.

ACIDOSIS IN CHILDREN.

THE publication, in another column of this issue of the JOURNAL, of an article by Dr. Arthur A. Howard of Boston on "Acidosis in Children" recalls the epidemic of this condition which prevailed in and about Concord, N. H., in Dec., 1913, and in Jan., 1914, and which was officially reported by Dr. Carleton R. Metcalf of that city in a paper on "Acidosis with Autointoxication in Infants and Children," presented before the annual joint meeting of the New England Pediatric Society, the Philadelphia Pediatric Society, and the Pediatric Section of the New York Academy of Medicine, in New York City, on November 5, 1914, and published in the January number of the *American Journal of Diseases of Children*.

Dr. Metcalf's report was based on a study of one hundred consecutive cases occurring in apparently epidemic form. Among these there were nine fatalities. The earliest cases appeared at Penacook, five miles from Concord; other sporadic cases occurred at Boseawen and Canterbury, ten miles from Concord in either direction; but the majority were in the city itself. Indiscretions in diet preceded the onset of many of the cases, but no definite defective food supply could be determined as the cause. Many of the cases were associated with respiratory infection, and Dr. Metcalf is inclined to believe the origin infectious, though without bacteriologic proof.

Perhaps one of the most interesting subjects in connection with this epidemic is that of the history of the disease. According to Dr. Howard, Nauyn is credited in the literature as being the first to describe clearly the condition of acidosis as the result of the pathologic production of acids in the course of metabolism. Gee of London is said to have contributed the first English paper on the subject in 1882. At the time of the Concord epidemic Dr. John Lovett Morse of Boston published the following brief sketch of the bibliography of the disease, referring particularly to the elaborate work of Brackett, Stone and Low published in the *JOURNAL* in 1904.

"Litten (*Zeitschr. f. klin. Med.*, 1883-4, vol. 7, p. 81) described this condition in children in 1883. Baginsky (*Arch. f. Kinderheilkunde*, 1888, vol. 8, p. 1) made a very careful study of acetonuria in children in 1888. Czerny and Keller called especial attention to acid intoxication in the acute gastrointestinal diseases of infancy in 1897 (*Jahrb. f. Kinderheilkunde*, 1897 vol. 45, p. 274). Marfan, 1901, describes a series of cases under the head of Vomiting in Acetone-mia, which are apparently identical with the cases now under discussion (*Archives de Médecine des Enfants*, 1901, vol. 4, p. 641). Peirson of Salem, Mass. (*Archives of Pediatrics*, 1903, vol. 20, p. 505), described a series of these cases in 1903, as did Edsall, formerly of Philadelphia but now of Boston, in 1902 and 1903 (*Philadelphia Medical Journal*, 1902, vol. 9, p. 1155, and *American Journal of Medical Sciences*, 1903, vol. 125, p. 629). Brackett, Stone and Low reported a series of cases from the Boston Children's Hospital, with an extensive review of the literature, in 1904 (*BOSTON MEDICAL AND SURGICAL JOURNAL*, 1904, vol. 151, p. 2)."

Especial reference should also be made to the paper by Dr. Morse on "Acid Intoxication in Infancy and Childhood," published in the *Archives of Pediatrics* in 1905 (vol. 22, p. 561).

Dr. Howard in his article, reports a further series of 64 cases of acidosis in children, not, however, appearing in epidemic form, and among these there were three fatalities, a mortality but little more than half that of the Concord epidemic. Dr. Howard also discusses particularly the treatment of the disease and his conclusions in this respect may profitably be compared with those of Dr. Metcalf, and with those of Parke in his report of the recent Birmingham epidemic (*Jour. A. M. A.*, 1907, vol. xlix, p. 1827; and 1910, vol. lv, p. 991), in which the mortality was 71%.

Perhaps the most important point for emphasis in conjunction with a comparative study of the various contributions is that the condition of acidosis is one likely to be present with considerable constancy among children under various circumstances of illness, and liable to occur with greater virulence in epidemic form as a result of some accessory cause not yet fully understood.

THE EARLY DIAGNOSIS OF TUBERCULOSIS.

THE NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS has recently formulated plans for a movement among physicians and medical societies to secure more interest and coöperation in the anti-tuberculosis campaign in this country. The executive committee of this Association has two specific suggestions to offer in this connection. The first is that each state medical society, by a special resolution or otherwise, urge upon all of its members the importance of special training in the early diagnosis of tuberculosis. The second suggestion is that each state medical society recommend to each of its county or local societies that at least one of their meetings every year be devoted to the discussion of tuberculosis. The National Association offers its services in the furtherance of either of these suggestions.

The movement on the part of the National Tuberculosis Association is a well-timed one. A well known Boston physician recently made the statement that if one wished to clear the hall at a medical meeting, one only had to announce that the subject of tuberculosis would next be considered. At one of the most important meetings of the year, held by the Suffolk District

Medical Society, at which the State Commissioner of Health read a paper of vital importance to every doctor in this community, there was but a sparse attendance. There is a growing feeling among a large number of the members of the National Tuberculosis Association that because tuberculosis is largely a social and economic problem, social workers and not physicians should be in control of the campaign. This is an unfortunate state of affairs. While there are bound to be waves of enthusiasm among the laity and the public at large in regard to any popular campaign such as that waged against tuberculosis, which are generally followed by periods of depression and lack of public interest, this ought not to be the case in the medical profession.

Tuberculosis has been in the past, and still is, one of the greatest if not the greatest of the problems which confront us. Any disease which annually kills over 200,000 people in the United States, needs continued and aggressive action on the part of the doctors of this country. In Boston, at least, there has been no meeting of the Suffolk District Medical Society this year or last which has particularly taken up the subject of tuberculosis.

It is hoped that the efforts of the National Association to arouse further interest in tuberculosis and in the prevention of this disease, as well as in preventive medicine in general, will meet with a hearty response from the medical profession.

EXPERT ADVICE DISREGARDED.

AN example of unwise, hasty and ill-advised public health legislation occurred in the passage, by the Massachusetts House of Representatives on May 6, of Mayor Curley's so-called pure bread bill, which provides for the labeling of all loaves of bread containing any ingredients other than those commonly sold for food products. The bill is injudicious because its provisions include ingredients which have been used for several years and which are not harmful to health. The labeling provision is particularly undesirable because of the unsanitary possibilities connected therewith. In realization of these defects, Dr. Allan J. McLaughlin, state commissioner of health, prepared a substitute measure, which was offered, eliminating from the Curley bill the labeling provision and allowing

bakers to use any ingredient tending to advance the art of baking, provided it be not dangerous to the public health. This rational substitute, which would have provided for the public all needed protection, was, however, defeated for political motives and the Curley bill passed. This bill was signed by the Governor on May 15, and will become operative on June 15. In the light of this legislative action it may well be queried what is the value of expert advice if it is to be overridden by other authority without special knowledge or experience.

HEALTH CONDITIONS IN BELGIUM.

WHATEVER may be said of the international ethics involved in the invasion of Belgium, it appears that in matters hygienic the Germans are doing their full duty by the country. Dr. Mamlock, a German medical writer, describes the present health administration there in a recent number of the *Deutsche medizinische Wochenschrift*, and the *British Medical Journal* for April 3rd admits that the sanitary conditions of the country are "not totally disorganized."

The health department, ostensibly under the control of the Belgian authorities, is really run by the Germans, and the physicians of both nations are coöperating in prophylactic measures, holding joint meetings from time to time to further this work. Their chief care at present is to prevent the spread of venereal diseases, which seem to be unusually prevalent.

Namur is the headquarters for military medicine in Belgium. The Belgian Sisters of Charity and the local health department are in charge of infectious diseases. The control of the hospitals in the town has been assumed by the Germans and many convents have been converted into hospitals, x-ray apparatus, dental departments, medicinal baths and other appliances having been installed.

MEDICAL NOTES.

FINE WEATHER BRINGS LOW DEATH RATE IN NEW YORK.—There were 1609 deaths and a death rate of 14.46 reported during the last week as against 1607 deaths and a rate of 15.01 for the corresponding week of 1914, an increase of two deaths and a decrease in the rate of .55 of a

point, which is equivalent to a relative decrease of 61 deaths.

The causes showing an increased mortality were measles, scarlet fever, diarrheal diseases and lobar pneumonia.

Those showing a decreased mortality were diphtheria, whooping cough, typhoid fever, organic heart and kidney diseases, broncho-pneumonia and pulmonary tuberculosis.

Viewed from the point of age grouping, the mortality of children under five years of age was considerably above, while that of adults and old people was slightly below that of the corresponding week in 1914.

The death rate for the first nineteen weeks of 1915 was 14.71 per one thousand of the population as against a rate of 15.41 for the corresponding period of 1914, a decrease of .71 of a point.

PHYSICIANS ABOARD THE LUSITANIA.—So far as ascertained, it is known that there were five American physicians aboard the *Lusitania* when she was sunk off the Irish coast on May 7. They were Dr. Howard L. Fisher of Washington, D.C., and Dr. F. Warren Pearl of New York, a surgeon-major in the United States army during the Spanish-American War, both on their way to join the American Red Cross unit in Belgium. Dr. James T. Houghton of Troy, N.Y., Dr. O. N. Kenan of Wilmington, N.C., and Dr. D. V. Moore of Yankton, S. D., who had volunteered his services to the British War Office and was on his way to report for duty. The fact that all these physicians were saved is presumably attributable to their superior coolness and self-possession in emergency. One of the most regrettable losses was that of Madam Depage, who has recently been in America raising money for the Belgian Red Cross.

ESCAPE OF A LEPER FROM JAIL.—Report from Springfield, Ill., states that an Italian leper who for the past three months has been imprisoned in the local jail, escaped on May 6 and is still at large.

AMERICAN ASSOCIATION OF IMMUNOLOGISTS.—The second annual meeting of the American Association of Immunologists was held in Washington, D.C., on Monday, May 10, under the presidency of Dr. Gerald B. Webb of Colorado Springs. A large program of addresses was presented and Dr. Emil Abderhalden of Halle, Germany, was elected to honorary membership. A complete report of the meeting will appear in a later issue of the JOURNAL.

GERMAN ASSOCIATION OF SCIENTIFIC MEN AND PHYSICIANS.—Report from Berlin states that Dr. Friedrick von Müller, professor of internal medicine at Munich, has been elected president of the German Association of Scientific Men and Physicians to succeed the late Dr. Eberhard Fraas.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.—At the annual meeting of the Pathological Society of Philadelphia on April 22, Dr. David L. Edsall of Boston delivered the annual address on "Bearings of Industry on Medicine."

PREVALENCE OF MENINGITIS, PELLAGRA AND POLIOMYELITIS.—The weekly report of the United States Public Health Service for April 30, 1915, states that during the preceding month of March there were reported 37 cases of cerebro-spinal meningitis in Virginia, 13 each in Massachusetts and Ohio and seven each in California and Indiana. During the same month 51 cases of pellagra were reported in Virginia and 38 in South Carolina. There were 20 cases of poliomyelitis in Virginia and eight in Massachusetts.

AWARD OF THE RICKETTS PRIZE.—Report from Chicago on May 5 states that the Howard Taylor Ricketts prize has been awarded by the faculty of the University of Chicago Medical School to Dr. Maud Slye, a medical research worker for her experiments in mouse cancer.

AWARD OF OSIRIS PRIZE.—Report from Paris on May 5 states that the French Institute has recently divided the accumulated funds of the Osiris prize, of which no award was made in 1912, to Drs. Chantemesse, Widai and Vincent, for their work on bacterial vaccines. A further sum is given to various ambulances and the remainder held in reserve. This prize was established in 1899 by Daniel Osiris, who established a fund whose income should be used triennially to award a prize of about \$20,000 for the most remarkable work or discovery of general interest.

AMERICAN GYNECOLOGICAL SOCIETY.—The fortieth annual meeting of the American Gynecological Society is being held at the Greenbrier White Sulphur Springs, West Virginia, on May 18, 19 and 20 of the current week. The presidential address was made by Dr. Thomas J. Watkins of Chicago at the morning session on May 19. On May 20 a joint session is to be held with the American Association of Genito-Urinary Surgeons at which, among others, addresses are to be made by Dr. Hugh Cabot and Dr. A. L. Chute of Boston on errors in the diagnosis of renal and urethral calculi and of renal infections.

UNIVERSITY OF NEBRASKA MEDICAL SCHOOL.—It is announced that the thirty-fourth session of the Nebraska State Legislature, which recently adjourned, has appropriated the sum of \$150,000 for the erection of a teaching hospital in conjunction with the University of Nebraska Medical School at Omaha.

NATIONAL COMMISSION ON MILK STANDARDS.—The annual meeting of the National Commission

on Milk Standards was held in New York on May 6. This commission, composed of prominent public health officials and sanitarians, was appointed in 1911 by the New York milk committee to recommend standards of milk and milk products. Among its members are Dr. Carl L. Alsberg, chief of the bureau of chemistry of the United States Department of Agriculture; Dr. John F. Anderson, director of the hygienic laboratory of the United States Public Health Service; and Dr. A. D. Melvin, chief of the bureau of animal industry of the United States Department of Agriculture. At its recent meeting the commission adopted a series of recommendations for new sanitary standards and regulations to govern the manufacture and sale of ice cream, butter and condensed milk. In an announcement made by the commission is the statement that "it is now known that all of the dangerous diseases spread through infected milk are also spread through ice cream and butter. In fact, these products offer a good medium through which germs of typhoid fever, tuberculosis, diphtheria, scarlet fever, septic sore throat and other infectious diseases may be transferred from diseased animals and handlers to consumers."

In this connection it is interesting to note the superiority of the milk supply in the District of Columbia, and its freedom from epidemics due to milk. It is controlled by a commission appointed by the President, consisting of three members whose jurisdiction extends over the police and health departments. The results obtained have been the more noteworthy in view of the fact that 85 to 90% of the milk supply comes from outside the district, and, while 85% of this comes from Maryland and Virginia, the remainder comes from Ohio and southern New York. None of this, however, is over 48 hours old. Washington inspectors have the benefit, of course, of the federal pure food law as well as their local regulations, and put them in force by inspection of every dairy that sends milk to Washington for sale.

EUROPEAN WAR NOTES.—Report from Washington, D. C., on May 6 announces an anonymous gift of \$10,000 for use by the American Red Cross "on the field of action in the European war, wherever the society may find the need most urgent and without regard to the nationality of those whom it may benefit."

On May 6 a party of eighteen nurses sailed from New York on the steamer *Philadelphia* for Boulogne, France, where they will work in field hospitals under the French Red Cross.

On May 8 Dr. Sherman Dunn sailed from New York aboard the French liner *Espagne* for Bordeaux, France, to serve with an American Red Cross unit at Amiens and at a base hospital near Ypres.

On May 15 a party of four physicians, one sanitary engineer and ten sanitary inspectors sailed from New York aboard the *Athenia* for service in the suppression of the typhus epidemic

in Serbia. The physicians of the party are Dr. Henry D. Neagle, Dr. A. F. Cornelius, Dr. S. H. Osborne and Dr. Harold H. Mitchell.

On May 8 Miss Mabel T. Boardman, national chairman of the American Red Cross, issued at Washington the following statement based on despatches from Dr. Richard P. Strong, head of of the American Sanitary Commission engaged in the suppression of typhus fever in Serbia:—

"The American Red Cross has received several despatches from the Sanitary Commission, which it sent to Serbia in coöperation with the Rockefeller Foundation. In the first despatch Dr. Strong reports that he believes the epidemic controllable in a comparatively short time under proper measures. There existed no central organization when he arrived there. The British, French and other organizations were each acting independently. He at once arranged to organize a central health board, and to introduce, with the government's support, proper measures of control. The work includes Montenegro, where also typhus is epidemic.

"On April 26, Dr. Strong reported that a board of health had been organized, with Prince Alexander as its president, Sir Ralph Paget as its vice-president, and Dr. Strong medical director. The chiefs of the French, Russian and English commissions and members of the military and civil medical departments of Serbia constitute the board. In this cable Dr. Strong asked for 500 clinical thermometers for the Serbian Red Cross, as there were only sixty in the country and none could be obtained in Europe. These the American Red Cross is arranging to send. He asked also for the twenty-five doctors or medical inspectors of sanitary work and a sanitary engineer, also the supplies that are being sent.

"In a cable of April 27 Dr. Strong made an additional request for 150 doctors, inspectors, or fourth-year medical students for the Serbian Government. He asked for cholera vaccine, for a bill was about to pass making cholera vaccination compulsory. The Red Cross is sending on the 13th. 12,200 doses of this vaccine. It sent a small shipment with the personnel that sailed some time ago. In the last despatch Dr. Strong said that the work was progressing favorably and harmoniously."

On May 15 the totals of the principal American relief funds for the European War reached the following amounts:—

New England Belgian Fund.....	\$256,253.65
Massachusetts Red Cross Fund...	134,200.95
New England Jewish Fund.....	61,974.86
Boston Polish Fund.....	45,596.54
Boston Serbian Fund.....	29,366.25

It is stated by the New York commission for relief in Belgium that the total of the cash and cargoes (in value) contributed in America, for distribution by the commission, now amounts to \$60,644,355.00. The total weight of foodstuffs and clothing amounts to 674,876 tons.

BOSTON AND NEW ENGLAND.

SUBSCRIPTION DINNER TO DR. SMITH.—It is announced that the postponed subscription dinner to Dr. Theobald Smith will be held at the Harvard Club on Wednesday, June 2, at 7 p.m. All physicians who desire further information about this dinner should communicate with Dr. Marshal Fabyan, 379 Commonwealth Avenue, Boston.

TRANSFER OF BOSTON QUARANTINE SERVICE.—On May 10 a lease was signed by Mayor Curley and by Dr. L. E. Cofer, the latter representing Surgeon-General Blue of the Public Health Service, providing for the transfer of the Boston Quarantine Service to the federal health authorities on June 1. The terms of the lease are based on a nominal rental of \$1.00 for the first year, at the expiration of which time it is expected that Congress will pass an appropriation for the purchase of the quarantine property at a price to be fixed by arbitration, presumably about \$200,000.

CHILDREN'S HOSPITAL TRAINING SCHOOL.—The annual graduating exercises of the Children's Hospital Training School of Boston were held at the Harvard Medical School on Thursday afternoon of last week, May 13. Diplomas were awarded to a large class of pupil candidates.

PHYSICAL CONDITION OF HARVARD FRESHMEN.—Dr. Roger I. Lee, professor of hygiene at Harvard College, has recently submitted a report presenting the result of a physical examination of the 662 members of the freshman class. Of these 288, or 43½%, had had some previous operation for trouble with the nose or throat. There were 273, or 41%, who wore glasses, and of these 108 wore them constantly. Forty-one, or 6%, had been operated upon for appendicitis; 20 presented lesions of the lungs, of which 12 were tuberculous; and 19 had some form of valvular disease of the heart. Thirty-three had never been vaccinated against smallpox. Only one had serious dental caries. The average age of the students examined was 18, the average weight 136 pounds and the average height 5.8 ft. At the conclusion of his report Dr. Lee writes in part as follows of the results and value of this examination:—

"One usually receives general impressions from a survey of this sort that cannot be put down in statistical form. The marked general impression which I gained from the completed examination of these 662 freshmen was that they made up a very healthy, wholesome group of young men.

"It had been the expectation that probably the real value of this examination would be the detection of a certain amount of disease which, if detected early, could be cured. We were able

to discover in a number of students conditions that have subsequently been corrected. We have also detected certain impairments which require observance and guidance, probably throughout the college course. This is already being done.

"But the greatest value of this examination, to my mind, and with this I have been very strongly impressed, is not so much the detection of existing disease, as the assurance of a larger group of boys, who think that they have disease, that they are really sound. Curiously enough, there were more boys who thought they had a serious organic defect, usually of the heart, and were found entirely sound, than boys who thought they were well and had disease. In many instances boys were worrying over ailments that were purely fanciful, but this worry was having a considerable effect on their general condition. The importance of the compulsory physical examination seems to be as much the correction of erroneous ideas concerning disease in the healthy as the detection of disease."

NURSING ASSOCIATIONS IN AMERICA.—In an address before the recent Massachusetts Health Conference, Miss Ella Phillips Crandall of New York presented statistics of the nursing associations and their work in America. In 1901 there were only 53 such organizations and only 136 nurses in the United States doing what may be termed community nursing. The municipal nurse was hardly known. There are now 2,066 nursing organizations in the United States and over 5000 nurses serving under departments of health or education, philanthropic organizations, insurance companies, and industrial and commercial agencies. The work of these nurses is primarily educational and prophylactic. The Boston Instructive District Nursing Association is recognized throughout the country as the pioneer organization in work of this sort.

REPORT OF THE NORFOLK STATE HOSPITAL.—The recently published first annual report of the Norfolk State Hospital for the treatment of inebriate patients and drug habitués contains the following information: There were 550 new cases received since June 1, 1914, the date of the opening of the hospital, 450 of whom were voluntary and 100 committed by the courts. In January, 1914, a permanent out-patient office was established in Boston, and because of its great value to the out-patient department of the hospital its extension is strongly recommended. The out-patient department of the hospital submits the following figures: visits to office, 471; visits to hospital, 105; visits to homes of patients who have been discharged from the hospital, 2770; visits to employers relative to work for discharged patients, 130; situations obtained for discharged patients, 97; men who are abstinent and working, 1188; men who are abstinent, but not working, 227; men who

are drinking some, but working, 295; men who are drinking and not working, 472.

MONSON STATE HOSPITAL.—The trustees of the Monson State Hospital report for the year ending Nov. 30, 1914, an average number of patients of 943, of which 96 were discharged and 62 died. Eight hundred and twelve patients were employed in various ways about the hospital and the report contains a long list of articles made by patients in the sewing and industrial rooms. Appropriations for the enlargement of the administration building, for increasing the supply of surface water and for the purchase of an electric outfit are requested.

FOOT AND MOUTH DISEASE QUARANTINE IN NEW ENGLAND.—Report from Washington, D.C., on May 7, states that the National Department of Agriculture ordered the foot and mouth disease quarantine entirely raised in New Hampshire on May 10 and the restrictions in the quarantine area in Rhode Island modified on the same date.

HOSPITAL BEQUESTS.—The will of the late Frances Bartlett, of Boston, which was filed in the Suffolk Probate Court on May 7, contains a bequest of \$24,000 to the Boston Instructive District Nursing Association, the income to be used to support a nurse under direction of the Boston Lying-in Hospital, the fund to be available so long as the association and hospital coöperate, and when they cease to coöperate the income to be used to support one or more nurses for the association. The will provides that when the association ceases to carry out the purposes of the bequest, then \$14,000 of the fund shall go to Harvard and the balance to the Lying-in Hospital.

The will also contains a bequest of \$20,000 to Harvard College to support two scholarships, one for the college, the other for the Harvard Medical School. The will also contains a remainder providing that Harvard shall receive the income of the residuary estate, to be applied equally for the maintenance of scholarships in the college and in the medical school.

Gifts have been announced to the sum of \$72,908 to be devoted to cancer research at the Harvard medical school. Of this amount, \$50,000 is provided by a bequest in the will of the late Philip C. Lockwood of Boston.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending May 11, 1915: Diphtheria, 64, of which 9 were non-residents; scarlatina, 70, of which 6 were non-residents; typhoid fever, 7, of which 1 was non-resident; measles, 160, of which 10 were non-residents; tuberculosis, 56, of which 2 were non-residents. The death-rate of the reported deaths for the week was 17.97.

Massachusetts Medical Society.

THE LABOR CLEAN MILK BILL.

THE President of the Massachusetts Medical Society has recently sent to every member of the Society the following circular letter, relative to the Labor Clean Milk Bill (Senate No. 482), which has been editorially advocated by the JOURNAL, and the text of which appeared in our issue of Feb. 25, 1915:—

“My dear Doctor:—

The Labor Clean Milk Bill advocated by the Massachusetts Medical Society will soon be laid before the Governor for his signature.

Will you please write to His Excellency, David I. Walsh, Governor, expressing the hope that he will sign this most important health measure.

It will enable the State Department of Health to enforce its suggestions for cleanliness in connection with the milk supply, something it cannot do under existing law. It also abundantly safeguards the rights of the producers and handlers.

It will be valuable to local boards which have not adopted dairy regulations, as they can invoke its aid to require unhealthful conditions to be cleaned up.

It is desirable that you should write the Governor as soon after the receipt of this letter as possible.

Very truly yours,
CHARLES F. WITHINGTON, M.D.,
President.”

Miscellany.

TRIENNIAL MEETING OF THE HARVARD MEDICAL ALUMNI ASSOCIATION.

THE triennial meeting of the Harvard Medical Alumni Association which is being held in Boston today affords an opportunity for both remote and recent graduates to observe the advances which have been made in the various departments of the school, in its affiliated hospitals, and in the other hospitals of the city. In the morning there will be operations and demonstrations of cases by members of the various staffs at the Massachusetts General, Boston City, and Psychopathic Hospitals, and at the Free Hospital for Women. At the Massachusetts General Hospital from 11.25 a.m. to 12.30 p.m., the following special reports of investigations will be given:—

- (1) A New Preparation for Making Injected Radiographs, by Dr. E. L. Young, Jr.
- (2) The Value of Cardiography in Diagnosis, by Dr. P. D. White.

- 3) The Clinical Value of Urobilin Estimation in the Stools as an Indication of Blood Destruction, by Dr. O. H. Robertson.
- 4) The Clinical Study of the Blood Flow, by Dr. J. H. Means.
- 5) Splenectomy in Pernicious Anemia, by Dr. R. I. Lee.
- 6) Types of Pneumococci in the Mouth in Normal Individuals in relation to the Etiology of Lobar Pneumonia, by Dr. F. T. Lord.
- 7) The Heart Muscle in Pneumonia, by Dr. L. H. Newburgh.

At the Boston City Hospital the following special demonstrations will be given:—

- 10.00 a.m.—Surgical Amphitheatre. Demonstration of X-ray Findings in Pericarditis, Drs. Sears and Palfrey.
- 10.15 a.m.—Use of the Duodenal Tube in Diagnosis and Treatment, Dr. F. W. White.
- 10.30 a.m.—Cases of Obscure Mediastinal Lesions, Dr. Cleaveland Floyd.
- 10.45 a.m.—Demonstration of Cases of Fat Transplantation, Drs. Lund and Loder.
- 11.00 a.m.—Technic of Blood Transfusion with Glass Cylinders, Dr. A. R. Kimpton and J. H. Brown, Ph.D. (Illustrated by moving pictures.)
- 11.15 a.m.—Observation on Blood Pressure, Dr. Cadis Phipps.
- 11.00-12—Pathological Laboratory. Demonstrations of Cutaneous Infection caused by a new fungus (*Phialophora verrucosa*). Dr. E. M. Medlar.
Demonstration of Cross specimens preserved by the oil (modified Kaiserling) method.

In the afternoon there will be similar demonstrations at the Peter Bent Brigham, Children's and Huntington Hospitals. At the Harvard Medical School the various departments will be open for inspection from 2.30 to 5.30, and the following special demonstrations will be given:—

- 3.00—Department of Physiology.
 - (1) Electrical Changes in Contracting Muscle, by Dr. Alexander Forbes.
 - (2) Quantitative Electrical Stimulation applied to Human Beings, by Dr. E. G. Martin.
 - (3) Experimental Exophthalmos, by Prof. W. B. Cannon.
- 3.30—Department of Hygiene and Preventive Medicine.
Ten-minute talks by each man in the department upon the problems at which he is now working.
- 4.30—Amphitheatre, Building D.
Syphilitic Diseases of Bones, with lantern slide demonstration, by Dr. E. H. Nichols.
- 5.00-5.30—Bone Changes in Rickets and Allied Conditions, with lantern slide demonstration, by Prof. R. W. Lovett.

The triennial dinner will be held at the Harvard Club at 7.30 p.m. The principal speakers will be Dr. H. P. Walcott, Dr. Leonard Wood, Dr. E. H. Bradford, Dr. H. D. Arnold, Dr. Haven Emerson and Dr. F. W. Peabody. All alumni, whether members of the association or not, are cordially invited to attend, and tickets at \$3.00 each, may be obtained at the dinner by those who have not already procured them. This triennial gathering of Harvard Medical graduates is an occasion, not only of pleasure and profit to them, but of advantage to the school to which they owe their medical training. It is earnestly to be hoped that every medical alumnus who can possibly make arrangements to attend any or all of the functions of this day will do so, not for his own sake alone but for that of others and of the school.

Correspondence.

PARIS LETTER.

MILITARY DEATHS AND FUNERALS IN PARIS.

(From Our Special Correspondent.)

PARIS, April 24, 1915.

Mr. Editor: It is a curious thing to observe the unsuspected strength of the callous side of human nature. In times like this, when all around us we hear of little else than misfortune or woe, we so quickly grow used to them that nothing short of an actual calamity any longer makes an impression. A large percentage of the women here are in mourning; everyone you speak to has lost relatives, one or several; out of six men mobilized in the house in which I live, three have been wounded, two very severely; my maid has had one cousin killed, and another is down with typhoid fever; and on the streets the sight of blind, maimed and disabled soldiers, all of course young and in the very prime of life, is incessant. After six months of this sort of thing it is really perhaps not surprising that we should have become unfeeling pachyderms.

There is, however, one sight that never fails to make a deep impression on me,—the simple, military funeral-convey of the soldiers who die in the ambulances here; it is, I imagine, this very simplicity that goes so far toward the extraordinary effect produced. Many of these gallant men have given up their lives for their country in utter silence, and die surrounded by entire strangers, their relatives in remote provincial villages often never even hearing what their fate has been. The importance which the French attach to the three great functions of life, births, marriages and deaths, is, of course, well-known; they were not the people, therefore, to allow these unfortunate victims of war to be whisked away surreptitiously and buried in some obscure cemetery without any of their beloved formalities. It was in consequence arranged by warm-hearted residents with the authorities that a regular funeral was to be accorded to each soldier dying in the Paris ambulances, even though he had not a friend, or a cent to his name. This thoughtfulness goes to show how difficult the French character is to understand, on account of its unexpected many-sidedness; for, in general terms, the Frenchman is not a kind person, at any rate as we comprehend the term. On the contrary, from our viewpoint he is

rather cold and hard. Yet this burial trait is simply charming. Here is what you see on the streets pretty much every day: A simple but nice open hearse, bearing the coffin shrouded in the beautiful national colors, and with a few flowers; the little procession is preceded by the usual municipal representative in dress suit, cocked hat and scarf of office; on either side walks the picket of honor with rifles reversed; and the rear is brought up by the indispensable cortège of mourners, who in this case, however, have to be purely people of good-will, soldiers, police, nurses in uniform, sisters of charity, and finally a few curious-looking elderly men and women, none of whom seem to know each other, and who have a general air of wondering how they came to be there. I have been told that there is a sort of confraternity of men and women with big and tender hearts that make it their regular business to follow to the grave the remains of these noble sons of France. They have probably reasoned within themselves that it will be a certain source of consolation to many a mother's heart throughout the land to feel that if her son is one of the many who breathe their last in the Paris military wards, he will at least be buried with ceremonious respect.

These funerals proceed at a measured pace. The invariable custom here is, even in times of peace, for the men on the sidewalks to touch or raise their hats as a cortège passes, and for the women to cross themselves. But now it is quite a different affair. As the picket of ten surrounding the tricolor goes slowly along, the passers-by on either side step to the edge of the curb, stand at attention and bare their heads. Many of them are former soldiers, and display in their buttonholes the green and black ribbon of the campaign of 1870. And as they line up there, giving the last salute to their younger comrade of this war of liberation, you suddenly observe a fact that the custom of wearing hats in the street had hitherto kept from evidence: that most of the men in Paris now are either gray, white or bald! All of the younger set are under arms. In a word, it is one of the most impressive scenes I have witnessed for a long while, and I am not ashamed to own that my eyes are moist each time it is given to me to be a spectator at one of these "last posts."

It is reported that at one of the recent ordinary civilian funerals an incorrigible Paris *garroche* was heard to murmur to himself: "Well there's a chap who could not have been very inquisitive!"—The hidden meaning of the remark being, of course, that it would worry him, *garroche*, more than a little to have to die just at this juncture, and not to live to see the end of this campaign and to learn what the peace terms will be. Think of departing to Abraham's bosom, for instance, with a wretched attack of pneumonia, as was the case with poor Lord Roberts, and never knowing how the war ended, what compensation was granted to Belgium and what her future frontier is to be; without reading of the re-uniting after more than a century of the three fragments of the Kingdom of Poland; without a knowledge of whether the former wrong to Denmark was made good, or the two provinces wrested from her by the joint attack of Austria and Germany in 1864 returned to her; and, last but by no means least, without being here to see the little men in red trousers make their delirious re-entry up the Avenue du Bois and down the Champs Elysées.

Among all the deaths that have occurred of late, two strike me as beyond all measure sad. The first is that of Paul Deroulède, the enthusiastic, indefatigable patriot and apostle of the Revanche. What a cruel irony of Fate that this generous son of the generous race should have been able to keep up his belief in the future return to France of the two lost provinces through all those dark and hopeless years, during which there seemed to the general outsider to be about as much prospect of the realization of this

idea as of the annexation of the planet Mars,—only to die six months before the outbreak of the hostilities that would have brought to him the dearest wish of his heart! And here again can be cited a noble and kindly deed to the credit of the French arms. When the first French *chasseurs* crossed the boundary of Alsace they at once threw down the German frontier-post, with its eagle and "Deutsches Reich," despatched it off to Paris, and had it fastened to the wall as a trophy over Paul Deroulède's grave in the modest little cemetery of La-Celle St. Cloud!

The other death is that of Lord Roberts. In a way it was a fine one, the death of a soldier among his brethren in arms, even if he did die of illness. But a cruel blow it must have been, all the same, to be carried off without seeing the end of such hostilities as these, the greatest in all history.

"S."

THE TREATMENT OF GUNSHOT WOUNDS OF THE LUNG.

DENVER, COLO., April 28, 1915.

Mr. Editor: Twenty-five years ago I had a case of gunshot wound of the lung in which slow but constant hemorrhage through the bronchial tubes in a few days carried my patient along "the trail of souls departing to the Spirit Land" (as the Indians call the Milky Way).

At that time I was making many post-mortems and I noticed the resiliency of the lung tissue and the way in which the lung collapsed and contracted when air was admitted to the thorax.

I thought then this idea might be made use of in handling gunshot wounds of the lungs, namely, to allow the contraction of the lung to constrict and close the blood vessels in selected cases, where too large blood vessels were not involved, until the blood vessels were filled with an organized clot after which the lung could be allowed to expand.

Since that time I have had under my care a famous U.S. naval officer who told me that in the Puget Sound country he had pleurisy with effusion but it was not discovered until he told his attending physicians that he felt as if his left lung were "jammed under his left ear."

I have had a New York Wall Street broker in Denver for tuberculosis of the lung develop a pneumothorax of the left side which pushed his lung over so hard that the heart's apex beat was beyond the sternum on the right side.

Aspiration, with a hiss of escaping air through the hollow needle like escaping steam, converted his respiration from 47 to 17, and a good night's sleep relieved an agony of 48 hours, and the patient recovered.

A case of empyema of the left side which came to me from the Philippines right after the Spanish war in which so many quarts of pus were evacuated by incision through the skin, made in a sitting posture (the patient could not lie down), and a thrust of a trochar into the thorax while only half etherized and nearly in collapse sent the pus spurting with such force that the first basin to catch it had to be held three feet away from the wall of the chest, the next basin two feet away, the third one a foot away, or the pus would have spattered into our eyes. (I had no rubber tubing with me for my trochar.) The patient recovered.

Now, if human beings can live with the chest cavity of one side filled and distended with pleuritic fluid, with air, or with pus, they can live with an artificial pneumothorax or with a chest distended with salt solution or filled with air alone without any pressure, as in a bad empyema before resection of ribs.

Why cannot artificial pneumothorax or distention with normal salt solution be used to compress certain selected, otherwise fatal, gunshot wounds of the lung until hemorrhage ceases and the wound heals after which the thorax can be aspirated and the lung allowed to expand or the thorax can be handled as an empyema?

Upon the firing line or just back of it, where other conveniences for pumping air or sterile salt solution were not at hand, air could be pumped into the pleural cavity with a rubber tube and a bulb (a No. 1 Davidson syringe would do) and the bullet hole or holes plugged with gauze covered with rubber tissue.

Even no pressure of air may be required. Simple admission of air to the thorax may allow the lung to retract and contract and close the bleeding vessels, and overcome the expansile thrust of the contracting right ventricle.

I have waited long for another gunshot wound of the lung. I may never have one. Perhaps this letter may reach the eye of a surgeon in Europe or America who might consider the idea worth trying.

Very truly yours,

O. J. PFEIFFER, M.D.

THE NASO-PHARYNX AS A PORTAL OF ENTRY FOR AIR-BORNE INFECTIONS.

COLONIAL BUILDING, BOSTON, May 6, 1915.

Mr. Editor: It is evident that you must have had your "ear to the ground" when you wrote the timely editorial, in the JOURNAL for even date, upon the sore throat epidemic in Dorchester and Milton. I cannot conceive of better advice to be given in the absence of direct evidence. As Professor Flexner has proven that epidemic poliomyelitis is conveyed by germs (or spores) entering or leaving the naso-pharynx as I have been suggesting in regard to what I insist upon calling air-borne infections, so in these "septic sore throat" cases there can be no other way of explaining their etiology. I personally investigated a similar epidemic which "broke out" in a large boarding school for boys, situated two miles from a city where other cases had occurred simultaneously. In the case of the boarding school it was very plain that the milk supply being local was "above reproach." There was, however, a single meteorological feature involved which could not have been satisfactorily explained had the observer entered the city from the North. There was snow upon the ground everywhere in the vicinity. The last storm to pass over the state had come from the South and Southwest. It had previously passed over uncovered territory with "slight precipitation." This territory, about 75 miles south, included an area previously "infected" where having been some "mild sore throats" reported herein. It is on record that an extensive and very severe winter storm which had moved northwards across Europe from Italy left in its wake "great precipitation." It is also known that such storms purify the air and this was true in this instance, but the severity and intensity of the storm set up vortices and "holes" in the air which were "filled up" by injected air from areas outside the storm-belt. There resulted a visitation of the influenza, and Munich, Vienna, Dresden and even more northern cities reported an epidemic of La Grippe.

Judging from this and other observations and having had great clinical experience with diseases whose original 'nidus' is unquestionably the rhino-pharynx and specifically that portion which includes the hypopharynx, I re-assert that it is practically impossible to conclude that such diseases, to include "streptococcal septic 'sore throat' or septic tonsillitis," first enter the economy through the alimentary canal.

EDMUND D. SPEAR, M.D.

THE POSSIBLE SYPHILITIC ORIGIN OF CERTAIN BLADDER ULCERATIONS.

Boston, May 7, 1915.

Mr. Editor: In the JOURNAL for May 6, Dr. Hunner records an interesting series of cases of bladder ulceration in women, all carefully studied and no definite cause found for their appearance. In the discussion of his paper, also in the JOURNAL, there is no mention made of the possibility of syphilis being the cause of these ulcerations. Rheumatism and tonsillitis were considered, but not incriminated. Certain points in the history of the cases (Italics mine) are of interest in this connection. In the first place, the *chronicity* of the ulcers or symptoms which were *probably* due to the ulcers without any tuberculosis being found; thus one case, Case 3, had been treated for bladder trouble 20 years ago. Case 5, bladder symptoms for 6 years; Case 6, *nocturnal enuresis* up to the menarche; Case 7, bladder symptoms *as long as she can remember*; Case 8, *severe temporal headaches* since childhood. Dr. Hunner, speaking of the cystoscopic picture, alludes to the smooth, white scars of former ulceration. Smooth white scars in other parts of the body are at least suggestive of healed gummata. He says: "Our conclusion, therefore, is that the diagnosis of this peculiar form of bladder ulceration depends ultimately on its *resistance to all ordinary forms of treatment*." In speaking of the pathologic picture, he says: "In some of the specimens this granulation tissue is fairly richly supplied with capillaries, but in most of them there is a preponderance of connective tissue and infiltration of small round cells and leucocytes." This latter is more or less suggestive of gummatous ulceration. In the light of the suggestive, but in no way positive, symptoms and clinical evidences, it would seem as if syphilis was a possible, even a probable, factor in some or all of these cases.

Let us recapitulate. Ulcerations of *very long standing*, not malignant, not tuberculous, with certain suggestive symptoms of possible congenital syphilis in some of the cases. White, smooth, scars, with a pathologic report not incompatible with gumma. Certainly with no other definite cause found, syphilis should be considered very strongly in these cases. It is not too much to say that a series of Wassermann's in cases of doubtful bladder ulceration, would show a considerable percentage of unrecognized syphilis.

Very truly yours,

WM. PEARCE COUES, M.D.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING MAY 8, 1915.

CONTRIBUTIONS.

The Medical Society of St. Lawrence County, Gouverneur, N. Y.	\$ 25.00
The Orange County Medical Asso., Santa Ana, Cal.	25.00
Dr. Parke W. Hewins, Wellesley Hills, Mass.	25.00
Dr. Emma B. Culbertson, Boston, Mass.	25.00
Dr. L. L. McArthur, Chicago, Ill.	25.00
Dr. V. B. Jackson, Washington, D. C.	10.00

Receipts for the week ending May 8.....\$ 135.00
Previously reported receipts..... 6585.50

Total receipts..... 86720.50

Previously reported disbursements:

1625 standard boxes of food @ \$2.20..\$3575.00
1309 standard boxes of food @ \$2.30.. 3010.70

Total disbursements.....\$6585.70

Balance\$ 134.80

F. F. SIMPSON, M.D., *Treasurer*,
704S Jenkins Arcade Bldg.,
Pittsburg, Pa.

NOTICES.

DOCTORS FOR DUTY IN A BRITISH BASE HOSPITAL.

Harvard, Columbia and Johns Hopkins Universities propose to provide a surgical unit to take charge of a base hospital for British wounded, and for that purpose there is desired a staff of thirty-two surgeons; sixteen of those will preferably be well trained fourth-year graduates or house-officers having just completed a surgical service. The expedition will start between June 5 and 15. The Harvard contingent will take the first detail for a minimum service of three months. Preference will be given to men willing to stay six months.

The service will be either in England or in France, depending upon exigencies. Transportation both ways will be paid, and men will be given regular army pay. Men wishing to join the expedition will please apply in writing to Dr. Edward H. Nichols, 294 Marlboro Street, or to Dr. C. A. Porter, 254 Beacon Street, or to Dr. Wm. E. Faulkner, 290 Marlboro Street, stating their age, medical education and surgical training.

NURSES FOR DUTY IN A BRITISH BASE HOSPITAL.

Harvard, Columbia and Johns Hopkins Universities propose to provide a surgical unit to take charge of a base hospital for British wounded, for a period of six months. The expedition will start probably sometime between the first and the fifteenth of June.

For this unit there is desired a staff of seventy-six trained nurses, consisting of one matron, twenty-six sisters (head nurses), and forty-eight ward nurses.

Nurses will be paid regular army rates: sisters, "head nurses," 50 pounds per annum; staff nurses, "ward nurses," 40 pounds per annum. Free transportation to and from the hospital, probably an American ship will be provided.

The service will be for a minimum period of three months, and preference will be given to nurses agreeing to serve for six months. The service may be in England or in France, depending upon exigencies.

Nurses wishing to join this unit, will please apply in writing to Dr. E. H. Nichols, 294 Marlboro Street, Boston, stating their training and experience, with references to doctors for whom they have worked. Nurses who have had special operating room experience, will please so state.

FIFTEEN DOCTORS WANTED.

The American Board of Commissioners for Foreign Missions needs at once fifteen surgeons and physicians for work in mission fields. Nine are wanted for China, four for Turkey, one for Africa and, most urgent of all, one at once for relief work in Serbia, with station at Monastir.

For China, six men and three women are wanted to join hospitals already running which treat from ten thousand to thirty thousand cases a year. The new men and women will be associated with surgeons in charge.

In four hospitals in Turkey physician-surgeons are wanted in association with doctors already on the ground. The American hospitals have increased their influence enormously during these months of

war and the men on the ground must be re-enforced. In Durban, Africa, a physician-surgeon is urgently needed.

The Board lays down no sectarian test. The candidates should be not over thirty-five years of age. In equipment the Board requires a degree from a first-class institution and in addition an internship or its equivalent. Specialization is not demanded though special preparation is welcomed. Details as to service may be secured from Dr. C. H. Patton, 14 Beacon Street, Boston.

APPOINTMENTS.

UNIVERSITY OF CALIFORNIA.—*Dr. Samuel H. Hurwitz*, formerly of Boston, has been appointed instructor in research medicine on the George Williams Hooper Foundation for medical research at the University of California.

UNIVERSITY OF MICHIGAN.—*Dr. Albion W. Hewlett*, professor of medicine at the University of Michigan, has been appointed visiting lecturer on medicine at the Harvard Medical School and temporary visiting physician at the Peter Bent Brigham Hospital, Boston.

UNIVERSITY OF TORONTO.—*Dr. Andrew Hunter*, formerly of the medical department of Cornell University, has been appointed professor of pathological chemistry at the University of Toronto.

RECENT DEATHS.

DR. SIR WILLIAM RICHARD GOWERS, who died on May 4 at London, was born in 1845 and was a graduate of Christ Church, Oxford, and of University College, London. He was a Fellow of the Royal Society and of the Royal College of Physicians of London and was known as a neurologist of international repute. He had received the degrees of M.D. from Trinity College, Dublin, and LL.D. from the University of Edinburgh. He was consulting physician of the University College Hospital, London, and of the National Hospital for Paralyzed and Epileptic. He was a member of the Royal Society of Science of Upsala, Sweden, and an honorary member of the Society of Russian Physicians at Petrograd. The best known work by Dr. Gowers is his "Manual of the Diseases of the Nervous System."

DR. JAY W. SEAVER, who died recently in Berkeley, Cal., was born at Craftsbury, Vt., in 1855. He graduated from Yale College in 1880 and received the degree of M.D., from Yale in 1885. He was for twenty years director of the Yale gymnasium and was at one time president of the American Association of Physical Educators and of the Society of College Gymnasium Directors. He was a writer on physical development and physical education. He retired from active work in 1905.

DR. GARDNER CALEB HILL, who died on April 30, at Keene, N. H., was born at Winchester, N. H., in 1829. He studied medicine as an apprentice to Dr. Comings of Swanzey, N. H., and received the degree of M.D. from the Castleton (Vt.) Medical College in 1856. After practising his profession for a time at Warwick, Mass., he removed to Keene in 1867. He is survived by his widow.

DR. SETH WIGHT KELLEY died at his home in Woburn, Mass., May 5, from cerebral hemorrhage. He was born in Oxford, Me., June 26, 1848, and received the degree of A.B. from Dartmouth College in 1869 and M.D. from Harvard University in 1874. In this year he joined the Massachusetts Medical Society, and settled in Woburn. He had been chairman of the Woburn board of health and a member of the school committee. He is survived by his second wife and one daughter. Dr. Kelley was councillor from the Middlesex East District from 1891 to 1898.

The Boston Medical and Surgical Journal

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Addresses

HOW THE PRACTISING PHYSICIAN MAY AID THE DEPARTMENT OF HEALTH.*

BY ALLAN J. McLAUGHLIN, M.D., BOSTON.

Massachusetts State Commissioner of Health.

THE practising physician has always been a great factor in the suppression of communicable diseases and his importance in public health work has been enormously increased in recent years because of the extension of public health work beyond the communicable diseases themselves.

The work of health departments and health officers has evolved from the suppression of contagious or epidemic diseases into the prevention of all disease and the business of keeping people healthy.

Wonderful progress has been made in the reduction of the general death rate and of the death rate for certain communicable diseases, notably, typhoid fever, tuberculosis and diphtheria.

Two great agencies stand out prominently in considering this great saving of lives, viz: the laboratory and the practical application of demography. Through these great agencies we have secured a better knowledge of the cause of disease, better knowledge of the prevalence of disease, and better knowledge of methods of prevention of disease.

The laboratory has given us exact knowledge of the causes of many diseases and has demonstrated how these diseases are transmitted. With this knowledge more precise and effective methods of combating these diseases have been devised and employed. Exact knowledge of the specific organisms which cause Asiatic cholera, typhoid fever, tuberculosis and diphtheria, and of the life history of these organisms, makes it possible greatly to reduce the mortality from these diseases, and to eradicate them under favorable conditions.

In the laboratory also we manufacture antitoxins and vaccines with which we cure or prevent these diseases.

Demography is second only to the laboratory as a factor in the great reductions effected in recent years.

By the practical application of vital statistics we learn in what localities and to what degree these diseases exist and are able to attack them more intelligently. These statistics also show what results, if any, are being attained.

The progress made and the great reductions effected, especially in typhoid fever, diphtheria and tuberculosis, are due in greatest measure to the improvement in public water supplies, the free use of antitoxin, and the splendid team work of various health agencies against tuberculosis.

The future reductions in the general death rate may be grouped under three heads, viz:—

1. Further reductions in the mortality from tuberculosis, typhoid fever, diphtheria, and some other communicable diseases, to the point of complete eradication.

* Read at the Boston Medical Library, February 17, 1915.

Years.	Cerebral Hemorrhage. Apoplexy.		Organic Diseases of the Heart.*		Cancer.	
	Deaths.	Rate per 100,000.	Deaths.	Rate per 100,000.	Deaths.	Rate per 100,000.
1895.....	1813	72.5	3566	142.8	1749	70.0
1896.....	2035	79.5	3664	143.3	1798	70.4
1897.....	1988	76.0	3615	138.1	1739	66.5
1898.....	2103	78.6	3618	135.0	1907	71.3
1899.....	2162	78.9	3691	134.5	1838	67.0
1900.....	2161	77.1	3834	136.8	1998	71.2
1901.....	2277	80.0	4368	153.3	2080	73.1
1902.....	2402	83.3	4495	155.7	2141	74.3
1903.....	2434	83.1	4837	165.5	2243	76.8
1904.....	2663	89.8	5342	180.4	2421	81.7
1905.....	2843	94.7	5430	181.0	2501	83.3
1906.....	2855	93.6	5525	181.4	2603	85.5
1907.....	3068	99.3	6155	199.6	2744	89.0
1908.....	2979	95.2	5690	182.0	2814	89.8
1909.....	3128	98.6	5504	173.4	2871	90.6
1910.....	3263	97.0	5706	169.5	3028	90.0
1911.....	3310	96.1	5455	158.2	3199	92.8
1912.....	3496	99.6	6762	192.4	3282	93.5
1913.....	3451	96.5	6869	192.0	3526	98.5

* Includes acute endocarditis.

Year.	Population.	Consumption.		Pneumonia.		Typhoid Fever.	
		Deaths.	Rate per 100,000.	Deaths.	Rate per 100,000.	Deaths.	Rate per 100,000.
1895.....	2,500,183	5486	219	4652	186.3	680	27
1896.....	2,558,437	5536	216	4703	184.3	723	30
1897.....	2,618,048	5431	207	4796	183.5	607	26
1898.....	2,679,048	5288	197	4206	157.0	663	25
1899.....	2,741,470	5221	190	4993	182.2	612	23
1900.....	2,805,346	5199	185	5282	188.5	632	23
1901.....	2,843,927	5033	177	4772	167.7	561	19.5
1902.....	2,883,030	4685	163	4583	159.0	538	18.3
1903.....	2,922,671	4531	155	5190	177.6	527	17.5
1904.....	2,962,857	4874	164	5100	172.0	463	17.5
1905.....	3,003,680	4702	157	5378	179.2	520	17.3
1906.....	3,044,980	4608	150	5377	176.4	477	15.7
1907.....	3,086,687	4771	151	5709	184.9	389	12.6
1908.....	3,129,128	4445	138	5363	171.3	517	16.5
1909.....	3,172,153	4393	133	5635	178.0	390	12.3
1910.....	3,366,416	4503	134	6677	198.4	411	12.2
1911.....	3,444,059	4418	128	5991	173.9	302	8.8
1912.....	3,511,510	4212	120	5965	170.0	269	7.7
1913.....	3,579,000	4180	117	6112	170.7	280	7.8

Year.	Measles		Whooping Cough.		Diphtheria and Croup.		Scarlet Fever.	
	Deaths.	Rate per 100,000.	Deaths.	Rate per 100,000.	Deaths.	Rate per 100,000.	Deaths.	Rate per 100,000.
1895.....	117	4.7	269	10.8	1784	71.0	483	19.3
1896.....	137	5.4	282	11.1	1677	66.0	249	9.8
1897.....	158	6.1	171	6.5	1426	55.0	342	13.1
1898.....	82	3.1	337	12.6	706	26.0	141	5.3
1899.....	241	8.3	338	12.3	1047	38.0	235	8.6
1900.....	330	11.8	337	12.0	1475	53.0	330	11.8
1901.....	173	6.1	210	7.4	1166	41.0	385	13.5
1902.....	333	11.5	337	11.7	873	30.3	313	10.8
1903.....	247	8.4	519	17.8	869	29.7	510	17.5
1904.....	160	5.4	117	3.9	699	23.6	138	4.7
1905.....	177	5.9	218	7.3	652	21.7	117	3.9
1906.....	208	6.8	509	16.7	743	24.4	135	4.4
1907.....	163	5.3	243	7.9	752	24.4	285	9.2
1908.....	331	10.6	288	9.2	747	23.9	369	11.8
1909.....	157	5.0	250	7.9	694	21.9	259	8.2
1910.....	240	7.1	183	5.4	679	20.2	254	7.5
1911.....	158	4.6	202	8.5	563	16.3	184	5.3
1912.....	286	8.2	225	6.4	473	13.5	118	3.4
1913.....	315	8.8	239	6.7	628	17.6	293	8.2

2. Reduction in communicable diseases whose rates have not been materially reduced.

3. Reduction in the rates for infant mortality, cancer, and a number of diseases which are preventable, but not communicable.

The field of preventive medicine is so large

that I will not attempt to discuss all the problems in which your assistance is needed by the State Department of Health.

I will discuss briefly some of the diseases in which great success has already been achieved, and invite your attention also to some problems

which have been more or less neglected or upon which no concerted attack has been made.

Two things influence health officers in selecting the factors in mortality upon which it is best to concentrate their efforts:

1. The number of deaths due to the factor.
2. The possibility of effecting prompt and significant reduction in the death-rate for this factor.

TUBERCULOSIS.

The eradication of tuberculosis depends upon:

1. Acquiring control of the "open" cases and maintaining this control until the death of the patient.
2. In discovering incipient cases and preventing them from becoming "open" cases.

We have in Massachusetts two excellent laws calculated to facilitate control over open cases and the early discovery and efficient treatment of incipient cases.

The law relating to hospitals aims to secure control of tuberculosis cases in the dangerous stages by providing hospital care near their homes. A city or town may comply with this law in one of three ways:—

1. It may build a tuberculosis hospital.
2. It may make satisfactory arrangements with a neighboring hospital to care for its cases.
3. It may combine with one or more communities in building a joint hospital.

If this law is carried out so that the tuberculosis patients in the terminal months of their illness are cared for in hospitals, a further great reduction in the death rate may be expected.

The dispensary law provides that all cities and towns whose population exceeds 10,000 shall provide a proper tuberculosis dispensary, satisfactory to the State Department of Health.

It is unnecessary to make any argument in favor of the properly organized dispensary. Its utility is obvious in detecting incipient cases, in following up cured or arrested cases returned from sanatoria, and in advising and educating tuberculosis patients and their families in the prevention of the spread of the disease.

Both laws should be vigorously enforced, but there is less excuse for delay in the matter of the dispensaries because of the lesser expense involved.

TYPHOID FEVER.

The rates for typhoid fever have been reduced in Massachusetts from 45 in 1887 to 8 in 1912.

This probably means that water and milk have been almost eliminated as factors, and that we are facing the problem of getting rid of "residual" or "contact" typhoid. This is a very difficult task, as it depends upon the education of the individual. If all individuals considered themselves potential carriers of disease and cleansed their hands and finger nails frequently enough, thoroughly enough, and at the proper

times, typhoid fever would disappear from our statistics and become a matter of history.

In this matter of educating the individual in personal hygiene and his duty to his neighbor, the practising physician can be of inestimable value.

I wish to accentuate one other possibility in reducing our typhoid fever rate, viz: anti-typhoid inoculation. This should be encouraged by the practising physician, especially for people who travel much, and patients contemplating vacations. The citizen at home is able to protect himself to some degree, but when travelling is at the mercy of cooks and waiters in hotels, and on boats and trains.

DIPHTHERIA.

The rate for diphtheria has been reduced enormously by the use of antitoxin.

Earlier diagnoses, a broader use of immunizing doses of antitoxin to the contacts, and larger doses to the patient will still further reduce these rates, and these are matters which are in the hands of the practising physician.

SYPHILIS.

Exact knowledge of the prevalence of syphilis is not available but it is known to be widespread. Its effects upon infant mortality, insanity, blindness, tabes and general paresis are well known.

We have exact knowledge, thanks to the laboratory, of its cause, modes of transmission, and prevention.

The story of laboratory achievement in syphilis in the past ten years reads like a fairy tale.

In 1903 Metchnikoff and Roux successfully transmitted syphilis to the lower animals.

In 1905 Schaudinn discovered the cause of the disease, the *treponema pallidum*.

In 1906, Wassermann, Neisser and Bruck gave us the Wassermann reaction, which enables us to detect even those cases without external symptoms.

In 1910, Ehrlich gave to the world salvarsan, a specific destroyer of the *treponema*.

In 1911, Noguchi grew the *treponema pallidum* in pure culture, outside the body, and produced luetic of great diagnostic aid in very obscure cases.

In 1913, Noguchi demonstrated *treponema pallidum* in the brain of patients with general paresis, and in the cord of tabetic patients.

In spite of this exact knowledge of the etiology, prevention and cure of syphilis, we are not able to say that this scourge is being reduced. One glaring defect must be corrected, if only partly. Statistics are lacking and they are no less necessary in this disease than in others, if an intelligent campaign is to be conducted against it. In this the practising physician can be of the greatest assistance. The State Department of Health will make syphilis a reportable disease within a short time. Physicians will report details of

each case, omitting the name of the patient, as is the practice in New York City.

Very valuable information can thus be secured and a definite comprehensive program outlined for reducing the prevalence of this disease.

Because of our lack of statistics of venereal diseases, we are unable to say definitely whether these diseases are increasing or decreasing. I do not believe that anyone is rash enough to say they are decreasing.

I regard the question of syphilis optimistically. We know the cause of the disease and we have specific spirochaetocides. We must have early diagnosis, prompt treatment and treatment with supervision sufficiently prolonged to ensure a real cure. We must cease dallying with dusting powders and iodides in our clinics and make salvarsan and mercury, properly applied, available to all.

The accomplishment of this rests with the practising physician, and the credit for the enormous reduction which will follow in locomotor ataxia, in general paresis, in insanity and in blindness, will also be his.

PNEUMONIA.

The statistics for pneumonia are rather indefinite. We have in our official records bronchopneumonia, lobar pneumonia and pneumonia undefined. In 1912, for instance, there were 5300 deaths under these three headings in Massachusetts, of which 2200, or 41%, were children under ten years of age; about 900 deaths, or 16%, were recorded as lobar pneumonia between twenty and fifty years of age. Another large group includes the deaths in persons between the ages of fifty and eighty.

The first group, children under ten, includes hundreds of cases following whooping cough, measles, and other "benign" diseases of childhood. Too often children with whooping cough are permitted to go to school, ride in street cars and go to theatres and other crowded places.

The pernicious belief that children must have such diseases should be combated and every effort made to protect young children from exposure.

The widespread distribution of pneumococci in healthy individuals suggests that the specific organism requires certain assistance in producing the disease. These other factors in its etiology are not clearly understood, although we may surmise that they act by lowering the natural resisting power of the individual. Prophylaxis is further complicated by the many varieties of pneumococci, and the fact that pneumonia is not a simple problem. We understand little of the mechanism of immunity in pneumonia.

It would seem that normal, healthy individuals have a natural immunity against lobar pneumonia, but that this immunity is rather feeble and easily impaired or destroyed. This

is borne out by the fleeting character of the immunity produced by an acute attack.

For these reasons the development of efficient curative sera and of prophylactic inoculation is not very promising. The laboratory in the future will probably clear up the problem and give us the specifics which we need. In the meantime, cases of pneumonia should be treated as dangerous contagious diseases, the spread of which depends upon the secretions of the mouth and nose.

It seems certain that the natural immunity in normal healthy individuals may be nullified by dissipation, excesses and exposure to cold.

A cold shower and change to dry clothing would prevent many cases of pneumonia in miners, iron and steel workers, firemen, coal passers and many factory and mill workers. As a rule, however, these facilities are not available and the worker leaves the hot atmosphere of his work for the cold outer air in his perspiration-soaked garments.

A great many cases of pneumonia can be prevented by attention to personal hygiene, cold baths, living quarters not above 68° F., and cool sleeping rooms.

As teachers of personal hygiene, we must depend in greatest measure upon the practising physicians.

ORGANIC HEART DISEASE.

Two facts stand out prominently in the consideration of heart disease,—the large part it plays in our death rate and the fact that it is increasing instead of decreasing.

I realize that heart disease is an old acquaintance, but not usually considered a public health problem. Nevertheless, it is not so hopeless as generally believed, and in many cases it is a preventable disease.

Heart disease is not preventable to any great extent by official action, but a great many cases can be prevented by the wise counsel and activity of the practising physician who is thinking of preventive medicine.

Excluding congenital defects, a large percentage of deaths from organic heart disease up to the age of twenty years are preventable. A great many of these are due to what is called "rheumatism." We need more light on the etiology of rheumatism, but we are reasonably certain of the importance of diseased tonsils and pharyngeal tissue in its etiology. We also know the constant association of tonsillitis, rheumatism and damp insanitary housing conditions.

Examinations of school children reach a great many of these cases, but there is no reason why a great many more examinations of young children should not be made by the family physician without waiting for the tonsillitis or the rheumatism or the valvular lesion actually to manifest itself.

Advice should be freely given to prevent the delicate child from overstrain by sudden violent

exercise, without proper preparation, or by entering a vocation for which he is physically unfit.

Physical exercise is of the greatest value if the exercise is properly suited to the patient, but we have seen in Marathon races, entry permitted to ill nourished youths with no preliminary preparation whatever. Exercise these boys need, but certainly not that kind of exercise.

There is a class, however, which is in even greater need of advice than the ill nourished and underfed. It is the overfed man who has no time for exercise, but who works long hours at high pressure, with perhaps heavy responsibilities and many causes for worry. With proper insistence in these cases, many valuable lives could be saved for an additional twenty years of usefulness which are now lost between forty-five and fifty years of age.

CANCER.

Cancer is one of the big factors in our mortality, and like "heart disease," is increasing instead of decreasing.

While our knowledge of its etiology is somewhat obscure, we have enough knowledge, if properly applied, to reduce greatly its ravages.

Cancer is a preventable disease if discovered early and promptly operated upon. There are several reasons why early discovery and prompt action are the exception rather than the rule. The early lesion is painless and we are not looking for it. When it is found, dislike of a cutting operation results in palliatives and delay. In no other disease, perhaps, is procrastination followed by such appalling results.

We should be looking for cancer because when the patient seeks us, it is usually too late. We must look with suspicion upon bleeding piles and uterine hemorrhages, or breast tumors after middle life, or any sore or swelling on the lower lip or tongue.

In addition to acquiring the attitude of looking for cancer and advising immediate action, the physician should seek to prevent cancer by removing one of the contributory causes, namely, local irritation.

Irritation of the tongue from broken teeth or rough pipe stems often occurs, and if warts or moles are subject to irritation they should be removed.

We must not regard lightly gastritis and gastric ulcer. A great many cancers grow from the site of a neglected or imperfectly healed ulcer, and the seriousness of frequent attacks of indigestion should not be minimized.

In an ideal health organization the practising physicians must be considered as health officers. I believe the physician has a moral, if not a legal, obligation to discharge some of the duties of a health officer. He cannot restrict his activity to curative medicine, but must practice preventive medicine also.

In practising preventive medicine, like his brother, the health officer, he must not restrict his activities to communicable diseases alone, but must extend his efforts to the prevention of many diseases which, although not communicable, constitute great public health problems.

The physician's aid to the health department in quick and accurate diagnosis, and prompt reporting of cases is invaluable, but no less valuable assistance may be rendered by the physician as an educator.

I am sure that all practical health officers have found that the greatest defect in the average health organization has been the lack of a medium for carrying sanitary instructions into the home.

It matters little which disease or problem we may be considering, after the officials have eliminated all factors which are corrigible by official action, there remains always a group of factors which can be eliminated only by the enlightened coöperation of the individual families or of the individual members of those families.

Let us consider typhoid fever as an example. It is possible by official activity to install and maintain a safe water supply. It is possible to reduce the danger of infected milk to a minimum by official acts alone. In fact, if the eradication of typhoid fever depended upon the elimination of the water and milk factors alone, typhoid fever could be made to disappear from our statistics with comparative ease.

Unfortunately, after the water and milk factors are eliminated, there remains a group of factors responsible for what is called contact, or residual, typhoid, which is very difficult to reach. The only way these factors, including fingers, food, and flies, can be reached is by instruction in personal and family hygiene.

We do not "catch" typhoid, we "eat" it. That is, it is handed to us with our food or drink.

Transmission of disease by means of fingers and food is the method by which these diseases were perpetuated and handed down from remote ages to the present day. It was the method which perpetuated these diseases under primitive conditions when men lived in caves and huts, and when public water supplies and great milk industries did not exist. And today, whenever conditions approach the primitive, where poverty compels the overcrowding of filthy tenements, we find these factors most active in perpetuating disease.

To secure the instruction of such people, to raise their standard of personal hygiene, is the most difficult problem which today confronts the health officer. It is manifestly impossible for the health officer personally to educate all classes in a community in personal and family hygiene.

Printed literature is of great value, but does not solve the problem, which in most cases demands personal instruction for its solution.

The two most promising agencies for carrying the gospel of public health into the home are practising physicians and visiting nurses. I will not attempt to estimate the relative importance of these two agencies, but I desire to accentuate the opportunity for rendering a great public service which is here presented to the practising physician.

The function and value of the practising physician may be likened to the antibody in the patient's blood which brings the complement into relation with the invading organism. In the blood of a normal individual there is sufficient complement to destroy infection, but without the antibody it cannot reach, combine with, and destroy the infection.

So in a health department. The potentiality to eradicate disease as represented by knowledge of preventive medicine exists, but cannot be applied in the tenement or slum unless some combining influence is available to bring this knowledge into the home in a way that the ignorant can understand.

Let us have an application of the knowledge we possess, and utilize the specific remedies and prophylactics which the laboratory has given us.

Aid the health authorities to secure accurate statistics! Help to prevent epidemics and unnecessary spread of disease by prompt reporting of cases!

Prevent the spread of the diseases popularly supposed to be benign, as whooping cough, measles and influenza, but which are really responsible for hundreds of deaths.

Educate your patients in the necessity of right living. Show them the suicidal effect of overfeeding, lack of exercise, and living in overheated, ill-ventilated rooms. Try to prevent the national fault of running the machine at high speed and under high pressure all the time, without proper relaxation, rest and exercise. Do what you can also to correct another national fault, that of placing a square peg in a round hole. The ill-fed, narrow-chested youth who should be "punching cattle" should not be permitted, without protest, to stoop eight hours daily over an emery wheel.

In asking you to take this extraordinary interest in preventive medicine and hygiene, I am asking you in all probability to curtail your income from the practice of curative medicine. I doubt if such a request could safely be made of any other profession without fear of ridicule, or perhaps personal violence. To your credit be it spoken, I do not think I am in danger of either. I confidently expect that in the future, as in the past, the physicians of Massachusetts will recognize their moral obligation as health officers and teachers of preventive medicine, and continue to aid health officials in reducing death rates in the Commonwealth.

HOSPITAL EFFICIENCY FROM THE STANDPOINT OF THE EFFICIENCY EXPERT.*

By FRANK B. GILBRETH, PROVIDENCE, R. I.

IN order to describe what an unprejudiced and trained observer in the field of waste elimination thinks of the hospital problem, and what method of attack upon it he would advocate, it is necessary to state what an efficiency expert does, and also to state what hospital efficiency is, from the standpoint of waste elimination.

An "efficiency expert," so called, is simply an engineer who substitutes accurate measurement for personal opinion, judgment, and unscientifically derived conclusions; who has devised units, methods, and devices of measurement that enable him to measure and compare the factors of results of problems that confront him. He comes with no ready made conclusions that are results of theory only, but comes, rather, with measuring means for comparing any performance with its plan. You, whatever your interest in the hospital problem, are primarily scientists. You are interested in facts, and the underlying laws the facts illustrate. All science is based on measurement. You know what we owe to science and measurement. The problem resolves itself into this:—How far has measurement been applied to hospital work, and how far have the results been taken as standards for practice; how can we consider the hospital as a factory; what methods of measuring efficiency in the manufacturing establishment are usable in a hospital?

In considering hospital efficiency, there are two questions which must be asked:—(1) "What does this factory, called a hospital, manufacture; what is the hospital's aim; and how is it attempting to attain this aim?" (2) "Are we getting the product as cheaply, as quickly, and in as large quantities as is possible?"

To consider the hospital in the most general terms, it must be considered as a "happiness factory." The hospital is subject to all the laws and processes of obtaining efficiency in the manufacturing establishment. The output of the hospital is "happiness minutes;" the aim of the hospital is to give the largest number of units of happiness to the most people, with the least expenditure of time, money, and effort,—or, in other words, with the least expenditure of energy possible.

We must think of this product, happiness, (1) as of the happiness of mankind as a whole—of the social group—(2) as of the individuals comprising the group. The happiness of the social group will be best gained when each individual in the group is happy, and when all are working together for the good of all. In the factory, this condition is called "heartly

* Abstract of paper read at a meeting of the Suffolk District Medical Society on January 6, 1915.

coöperation." It is one of the nine fundamental features of measured, functional management.

There is nothing corresponding to this in the management of any of the scores of hospitals that we have surveyed. The problem is not one of medicine or surgery. It is a problem of management. If you do not agree with me, I suggest that you write down what you think the purpose of a hospital is. It is not important that we agree, today, as to what the fundamental aim is. It is important that the aim be determined accurately.

The next question is, "Are we getting what we are aiming for?" Individual surgeons and hospital superintendents have said, "Yes." But if we are, have you so formulated your results that others may use them to transfer skill, and improve upward from the results of the most successful? If your hospital force is getting what it desires, how about the individuals comprising the group? Each individual is most efficient when he does what he can do best, and likes most, for the greatest percent of his time possible. The social group is most efficient when its every member has been assigned functionalized work.

No hospital has as yet submitted its aims and methods to accurate measurements. Most hospitals have not put that work which they have done in such form that it can be effectively used.

To apply accurate measurement,—first of all, apply the survey principle. Record *what* you are doing, *how*, and *why*. The first step in all improvement is an accurate record of present practice. But where is there such a record of hospital practice? We have been trying for three years to get some surgeon to write a detailed account of an operation.

The next step is applying measurement to the records. Such measurement is technical work. It demands an understanding of the fundamentals of management. The various tests which have been worked out, and which apply to capacity of all sorts, must be applied. The likenesses that underlie all lines of activity must be realized. It has been customary always to emphasize the difference between things. We look for likenesses as well as differences. The great fundamental, underlying all lines of activity, is the fact that it is human activity.

What we propose to you is that you learn to think in the industrial vocabulary,—to use industrial experience. The industrial world has been obliged, through economic pressure, to study waste elimination. It has derived underlying laws for attaining least waste, underlying methods for applying these laws, and an equipment of units, methods, and devices of measurement. You, with the greater need, education, field, and work of greater importance,—can gain results from measured functional management, the magnitude and far reaching effects, of which no industry could hope to equal.

You have but to see and accept the necessity

for measurement. What has been done in the industries is at your service. You, as individuals, can take these results, and work at your own problems; but the big things demand coöperation. Functionalization, inspection, standardization, the right incentive, the proper teaching, the least fatigue, the greatest welfare,—these are the results. At the root of them all lies *Measurement*. Time study, motion study, the chronocyclegraph and micro-motion processes,—these are means of making measurements that lie ready to your hand. The great question to be answered is, "Shall we make the hospital a place fit for scientists to live and work in; shall we submit our work to measurement, and act on the results?"

HOSPITAL EFFICIENCY FROM THE STANDPOINT OF A HOSPITAL SURGEON.*

BY R. L. DICKINSON, M.D., F.A.C.S., BROOKLYN, N. Y.

Capable of standardization are:—

- 1—The training and qualifications of the workmen and heads of departments—doctors and nurses—even trustees.
- 2—Tools and equipment.
- 3—The organization of the workshops—office and hospital and sanitarium.
- 4—The procedure.

Many of the factors are being worked out:—

- 1—A. Among professional men—
 - a Preliminary education,
 - b Medical education,
 - c House staff service,
 - d Dispensary service,
 - e Assistance in hospital,
 - f First assistant positions,
 - g Heads of service or full attending,
 - h Consultants.
- B. Among nurses:
 - a Training in school.
 - b Training in hospital.
 - c Training in operating room.
 - d Training in social service.

But the status of the interne is chaotic: in one place he is a mere dresser; in another, he demands laparotomies—and with no more preparation; the attendings are responsible to no one; the consultants do not consult or advise or inspect; many trustees take it out in trusting. How many real advisory boards, like that of the Rockefeller, are in active existence? Among nurses why should peritonitis be risked to give

* Read at a meeting of the surgical section of the Suffolk District Medical Society on January 6, 1915.

every nurse a bare smattering of training to be head of an operating room, any more than house officers be given the impression they can do major surgery?

2—As to *tools*, we have not made a start to standardize such things as:—

- a Form.*—For example, with the needle why should the stitch ever slip out if the eye is wedge-shaped? Or why should a cutting edge needle ever be used except for skin or cervix? Or a flat portion, for grasping, be missing in needle holder?
- b Material.*—Why should some needles be brittle?
- c Number.*—Why should the group working in an operating room not agree on a few fixed forms and sizes?
- d Name.*—Why should not all operators call one tool by one name?
- e Price.*—Why not an average cost?

3—As in the organization of the workshops, whether it be the private office of the family practitioner, the group in an office building, the dispensary, the private hospital, the public hospital or the sanitarium, only the beginnings have been made for standardizing professional work. The appended references will give the clue to these beginnings and the outlines that follow are mere skeletons or samples of the kind of planning that is inevitable in the near future.

4—As to the procedure, there is no frequently repeated act in hospital work, from the taking of histories up to the team work in the gravest operation, that cannot be plotted out to standard made up from a study of the best methods, and printed on instruction cards. It goes without saying that adaptation is made to fit varying needs as, for instance, to the little hospital in a small town or the great public institution.

THE FIVE INEFFICIENCIES (IN PROFESSIONAL WORK).

1. *Lack of Time* given by staff because free hospital work is necessarily secondary to earning a living in all but exceptional cases.

Remedy.—Requirement of fixed hours and quality of work, for salary; selection and promotion for merit; service continuous; ratings and reports on amount and character of product; assistants with some salary, and in sufficient numbers; senior resident a hospital graduate, remaining two or more years on salary.

2. *Lack of Organization.*

Remedy. — Single-headed departments; small committees, held to strict responsibility; certain changes in allotment of functions or parts of the work, in accord with the ideas of "Scientific Management"; understudy for every position;

associate in full charge two months of each year; long time team-work in operating room; short time internes to do only minor surgery.

3. *Lack of Instruction.* Nobody's business to see that men are drilled in technic and duties; no instruction cards.

Remedy.—"Vorschrift" throughout, and definite methods and times of teaching and drilling younger men.

4. *Lack of Inspection.* No check on quality of work or end-results.

Remedy.—Study of product, and delegation of one man (or several) to duty of frequent inspection and recording of details of technical work, and report of same to governing board.

5. *Lack of Publicity.* No bulletined errors; no available comparisons.

Remedy.—Inspection, tabulation of successes and failures, study of end-results and ratings on work of each department and each individual, and publication of same, particularly in state and municipal institutions. Publication need not involve great bulk. An interval appendectomy with prompt healing takes but one line. Cases that do badly call for detail.

SUGGESTED FORM OF REPORT ON EFFICIENCY OF EACH MEMBER OF PROFESSIONAL STAFF.

Position held. Average No. of beds.

- A. *Quantity of work*; months on duty; total visits required; total visits made; total hours given to hospital (or dispensary): vacation; illness; absences, excused, unexcused.
Estimated committee service.
- B. *Quality of work*; (thoroughness, promptness, rapidity).
 1. Preliminary examinations, consultations.
 2. After-care, examinations for discharge, instructions to follow-on.
 3. Histories, personal inspection, personal notes, reviews, studies on end-results.
 4. Laboratory work, supervision, personal work.
 5. Training of hospital staff, nurses, dispensary staff.
 6. End-results (Codman methods); each individual's errors scored by
 - a. lack of technical skill;
 - b. lack of surgical judgment;
 - c. lack of care or equipment;
 - d. lack of diagnostic skill.

Failures grouped also by:

 - a. patient's enfeebled condition;
 - b. patients' unconquerable disease;
 - c. patient's refusal of treatment, and by
 - d. surgical calamities.

Methods; notes on full histories by chief; review by consultant or efficiency committee; summary of history by clerk; choice by staff of certain operations as tests (e.g. suppuration in clean laparotomies).
- C. *Personality*; integrity; disinterested obedience to rules; team-play; kindness; cheerfulness; enthusiasm; and ability to inspire these.
- D. *Progressiveness*; study of literature; travel to other clinics; membership and attendance at medical societies; originality; researches; publications.
- E. *Executive ability*; initiative; originality; organizing power; control.

- F. Teaching*; staff, nurses, dispensary; students; public clinics.
- G. Inspections*; number, by trustees, consultants; hospital inspector. Certain defects to be heavily scored—such as lack of judgment. Percentage to be given under each heading to be determined. Positions differ. Some positions will have a score for executive work, and some for teaching and others will not. This will involve grouping and reporting such positions separately, but any man's abilities in the above matters should be noted, even if not marked on a score.

COMMITTEE FUNCTIONS.

- Efficiency Committee, ECm.* Member board of trustees, member of staff, superintendent; reviews of order of work, equipment, instruction, time and cost and results.
- Professional Staff Committees.* One man each, chief or associate; with substitute, one of younger men (except ward committee).
1. *House Staff, HSCm.* Finding internes, provision of instruction, report on quantity and quality of work done by each, but superintendent has executive control.
 2. *Operating Room, ORCm.* Harmonizing and standardizing equipment, procedure, and lists (instruction cards).
 3. *Ward, Wcm.* Diets and drugs and formulae; nursing (instruction cards).
 4. *Histories, HCm.* Also library; publications; standard nomenclature of diseases, injuries and operations; filing, indexing.
 5. *Dispensary, DCm.* Professional relations and nomination, but dispensary has its own meetings, and joint clinics; its executive control under the assistant superintendent.

Planning.

- a Committee on Order of Work, OWCm.* May be chiefs from three main services, with superintendent and senior resident; chairman, chief surgeon.
- b Committee on Instruction Cards, ICCm.* May be five staff committee men, plus superintendent and senior resident; chairman, history committee man.
- c Committee on Discipline, DCm.* Same as OWCm. Chairman, superintendent.

DEFINITION OF DUTIES (SAMPLE).

Operating Room Committee. Symbol—ORCm.
TASK:—

- a To gather ideas and information pertaining to equipment, routine, standard names of tools, in other clinics, and submit improvements to the surgical staff, with recommendations.*
- b To prepare, to submit to surgical staff, and when endorsed, enforce, for average conditions, a standard or minimum procedure, in sterilization, preparation for operation in general and for particular classes of operation, in team-work at operations, etc.*

- c To secure agreement among surgical staff as to standard equipment, (e.g. knives, sutures, and material).*
- d To order new equipment and repairs for O.R. outfit.*
- e To recommend to staff candidate as anesthetist and arrange for anesthesia.*
- f To oversee O.R. nurse's methods, cataloguing, entry in book.*
- g To arrange with instructor for drill in technique of the specialists, associates, and assistants.*

PERSONNEL:—Member of surgical staff (preferably chief or associate); substitute to act in his absence, younger man on surgical staff.

METHODS:—

- a Instruction of professional staff and house staff and O. R. nurse as to routine of O.R. (or deputizing same).*
- b Assignment of studies in O.R. technique to members of staff.*
- c Report to staff meetings (in writing, for annual report).*

EQUIPMENT:—

- a Operation book.*
- b Card catalogue of instruments, with cut of each, under standardized names.*
- c Standardized samples of needles, gut, etc.*

In order to take up the whole subject of the efficiency of the hospital and its professional work in a far-reaching manner, which will prevent duplication of effort and provide for combination and coöperation, the following would seem to be required:—

First, a *Central Board on Standards*, whose function it should be to collect information and sift it, to allot the parts of the great problems for investigation, to furnish means for some part of the necessary research, to publish the results, and in general to serve as a board of control. Such a board might well be a committee named by the American Medical Association in conjunction with the American College of Surgeons. Its various functions only experiment will determine, but travelling instructors with sample outfits and regular inspection may well become part of its extension work.

Second, *Experiment Stations*. These may be in a variety of locations and institutions, duly accredited, as in our best research laboratories that are connected with active clinics.

Third, a *Library*. This should be central, with branches and the utmost facility for loaning books—very much as the Surgeon-General's Library does it, or it might be a branch of this library.

Fourth, a *Museum of Standards*. This, too, should be central, as in Washington or Chicago, and should have certain facilities for loaning standard outfits.

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HOSPITAL EFFICIENCY FROM THE STANDPOINT OF HOSPITAL TRUSTEES.*

BY WALTER WESSELHOEFT, M.D., CAMBRIDGE, MASS.,

Trustee of the Massachusetts Homeopathic Hospital.

IN speaking as a trustee on the question of efficiency I must keep in mind the position so far held by the boards in relation to the hospital staffs. Their responsibility is for efficiency in administration, which is distinct from efficiency in the wards. This latter the trustees must take for granted. The people whom the trustees represent take it for granted. The question is, are the trustees in any way prepared to keep a watchful eye on the efficiency of the staffs? Is it called for and is it possible?

The trustees would be treading on very difficult and very delicate ground in case they were to propose new measures or methods. For it must be borne well in mind that the introduction of efficiency does not mean the introduction or control of the methods in use. It means much more. In point of fact it means the application of the *method of science to therapeutics*, in other words, to clinical research, and this means the methods for the *elimination of error and of comparative therapeutics*.

I believe that sooner or later the profession will wake up to the need of this reform; but for obvious reasons the trustees cannot be asked to introduce innovations of so far reaching and difficult a nature. If they can be made to see the importance of this method, and the results sure to follow in time, they will not fail to give it all the support in their power, but the first

steps must come from the profession, and it must be made plain that they include no courses of idle individual experimentation.

Certain features, I believe, might be established with comparatively little difficulty or expense, and it is this latter which the trustees have to watch over with care. It might be practicable to institute means for determining *end results*. Accurate records and certain extensions of the social service, a part of many hospitals, might accomplish this. In surgery with its allied branches, early results might be made to appear.

In internal medicine, however, the difficulties would be infinitely greater. Here we are confronted at the outset by the fact that diseases recover under all sorts of treatment, that they recover under no treatment at all, and that they terminate fatally under the best treatment, or that which is accepted as best by any individual party or school. Again, the present methods for meeting our responsibilities have been fitly described, not so long ago, "as a jumble of contradictory rules and expedients originating in part in shallow and illogical generalizations and in part in crudest empiricism."

These two propositions placed in juxtaposition constitute a chaos out of which no board of trustees can extricate us. There is but the one remedy in sight, the framing of rigid rules and their *faithful observance* both of *control* and *record*, to which should be added *continued service*. By these means many errors might be eliminated, many a doubtful course replaced by a better one and the rising generation drilled in the art of observation which now leaves much to be desired. It would mean a mighty reform in therapeutics and by the comparative method, minimize the effects of the personal equation of the individual physician, and establish in time the merits of old and new methods. The scientific method, that based upon the fundamental principles of science, is no mere generality. It is the sole umpire between opposing measures and methods. So long as doctors differ (and in our hospitals as elsewhere, they will always claim the right to do their best in their own way) there must be found a way of differentiating the better from the good and the good from the bad.

It would lead one too far to enter upon a discussion of details. These must come from other quarters. There can be little question that a reform to which the profession is ready to devote its energies must succeed.

Let me briefly add a further reason why in time this reform should succeed. Here in your security, where you are constantly listening to the best that can be brought before you, you are apt to forget that with all your power and influence, you and we, as trustees, represent only a part of the people; that a very large portion of them are left as free to form an opinion on medical subjects as they may on subjects of religion. Conse-

* Read at a meeting of the Surgical Section of the Suffolk District Medical Society, on January 6, 1915.

quently before the law we occupy no other position than that of other systems, theories and methods not recognized by the profession. The law-making powers are willing to grant your prestige and preëminence and are willing to give you a free hand in matters pertaining to the public health, but you know them to be quite as willing to bestow their favors as generously upon any body of practitioners coming before them to demand a charter or claiming miraculous powers of healing. This is the infinite advantage of a free country, but it throws a double responsibility upon the profession.

Original Articles.

THE RESPONSIBILITY OF THE GENERAL PRACTITIONER FOR THE CARE AND SUPERVISION OF THE DISCHARGED SANATORIUM PATIENT.

BY JOHN B. HAWES, 2D, M.D., BOSTON.

IN considering how far the general practitioner should hold himself responsible for the care and supervision of discharged sanatorium patients, I am assuming at the outset that every tuberculosis patient at some time or other should have the training that the sanatorium alone can give. Although Dr. Charles L. Minor of Asheville and Dr. Joseph H. Pratt of Boston have done much to show us what real home treatment is and what it can accomplish, most of us feel that home treatment should never take the place of sanatorium treatment except in the rarest of instances. In many states, far too many, unfortunately, home treatment is the consumptive's only resource; in Massachusetts, however, this is not so. Although there are not yet in this state as many beds as there should be, there are enough so that nearly every patient who needs, and who seriously desires sanatorium treatment can get it. It is true that often the patient has to wait one, two or three months or longer before admission, which is, of course, a serious obstacle to effective treatment of early cases. If this interval, short or long, can be bridged over, the patient can be sure of receiving high class sanatorium treatment at little or no cost and, with the exception of Rutland, for as long as he chooses to remain at the sanatorium. There are about 3000 beds for consumptives in Massachusetts; of these, nearly 1000 are in our state sanatoria, 750 in other state institutions, about 1000 are in local tuberculosis hospitals, and 250 are in private sanatoria and hospitals. At Rutland we can accommodate all the incipient and early cases who apply. By a new arrangement, whereby each patient entering this institution is placed on a month's probation as it were, to

determine whether or not he or she is really an incipient or favorable case, we expect to greatly increase the percentage of early cases at this institution. Last year the proportion of incipient cases was 37%, the largest in the history of Rutland. Of special importance, we hope to reduce the time that patients now have to wait after applying and before admission. While we still take many far advanced patients at North Reading, Lakeville, and Westfield, we hope, as the number of local hospitals increases that these institutions, too, will be used to a far greater extent than now in caring for those patients who, if not incipient, are at least only moderately advanced and are favorable for marked improvement or arrest. The incorrigible consumptive still presents a most difficult problem. It is one, however, that must be settled in most instances by local and not state authorities.

At the present time there is a strong feeling prevalent, not only in this country, but in Europe that the sanatorium and the sanatorium treatment of consumption is on trial; that it has not proved the great success and brought about the results which we hoped that it would. Literature is filled with articles bearing the titles, "Are Sanatoria Worth While?", "Home versus Sanatorium Treatment," etc. This is a situation which we must face; the reasons for this doubt and mistrust must be clearly analyzed and understood by all if we hope to improve the situation.

I believe the great and fundamental reason why there is a growing doubt in the minds of the public and the medical profession that the sanatoria have not turned out to be all that they should, is because of the lack of early diagnosis and aggressive treatment on the part of the medical profession. The early diagnosis of tuberculosis, however, and the reasons for the lack of such diagnosis, is a subject far too large to be considered within the scope of this article.

The other great reason for this state of affairs is because the average general practitioner has not realized sufficiently clearly that his duty toward his patient is not ended when he has escorted him safely within the doors of a tuberculosis hospital or sanatorium. He does not realize that the time spent at the sanatorium is merely preliminary to years of faithful treatment on the part of the patient and constant and wise supervision on the part of the doctor after the patient leaves the sanatorium. If every general practitioner would only realize this, and constantly remember that the time spent by the patient at a sanatorium or health resort is simply an incident in his course of treatment, the important part of which must come during later years, our results would be far better. It is the constant throng of patients who have relapsed and who make re-application for admission to our institutions, generally in a worse condition than they were before, which makes not only them and their relatives, but the

general public, ask what good has the sanatorium done in their case. It is very true that much of the blame for this state of affairs rests with the patients themselves. A certain part of it, however, we members of the medical profession must assume. The sooner we assume it and take steps to correct it, the quicker will the public follow in our footsteps. At the present time it seems to me that the State as such is going as far as it well can under existing conditions in looking after its discharged sanatorium patients. Our present system, already familiar perhaps to many of you, is somewhat as follows:—

On receiving a patient's application at the Boston office, the physician is at once notified as to the sanatorium to which his patient is to be sent. On admission to the sanatorium some time later, the physician and the local board of health are again notified. Finally, on discharge from the sanatorium, the physician is written a personal letter giving in considerable detail the patient's present condition with advice for the future. The two following letters were taken at random from our files:—

"March 20, 1913.

"My dear doctor: E. C. was admitted to the Rutland State Sanatorium December 9, 1912, on an application made out at the Boston Consumptives' Hospital. He was discharged March 19, 1913.

"He was admitted as an incipient case of pulmonary tuberculosis, and was discharged with the disease 'arrested.' At the time of admission there was slight dulness to the third interspace, at the top of the right lung, and a few fine râles, both front and back. At the time of discharge there was suspicious dulness at the apex, but no râles were heard. The patient seemed to be in excellent physical condition, and I believe he will be able to take up some clerical work, such as he had been doing, and if he uses reasonable precautions he will probably be able to live very well in Boston.

"I advised him to return to your clinic to be examined occasionally."

"July 3, 1913.

"Dear Doctor: This is to inform you that Mr. J. B., admitted to this sanatorium July 1, two days ago, absconded at 7 a.m. today. He is a 'moderately advanced' case of pulmonary tuberculosis, expectorating about two ounces of sputum per twenty-four hours, in which tubercle bacilli are exceedingly abundant. He has vesperal fever and other signs of marked disease activity.

"As far as can be learned, this patient said that he left the institution because he did not like it here. He told the patients that he wanted to get out to celebrate over the Fourth.

"This patient has not been in the institution long enough to show any improvement, but he has shown that he needs treatment immediately, and isolation from healthy people, as he is, no doubt, a very infectious case."

Copies of such letters are sent to the local board of health, the local anti-tuberculosis association, if such there be, the state board of health, and to this office. Within the course of a few weeks after discharge, this patient is vis-

ited by Miss Billings, our nurse engaged in this after-care work. Miss Billings makes a detailed report of the patient's condition, surroundings, family, occupation, etc.; and of still more importance, whenever possible, becomes a friend of the family, personally interested in the patient's affairs, and not merely a paid emissary of the state. In addition to this, she sees the local visiting nurse or someone connected with the local board of health, or the patient's physician, if such there be, and makes suggestions as to future needs. Some months later another visit is made if necessary. Whenever possible, Miss Billings gets in touch with the local nurse or tuberculosis worker and turns this work over to her. This is as it should be, for, after all, it must be realized that tuberculosis is a local problem, one which commences and ends at home.

I do not see how the state can go further than it is now doing, as I have described above. The burden of the rest of the work must be assumed, first by the local boards of health, tuberculosis societies and dispensaries, and last, I believe, of still more importance, by the general practitioner.

Local boards of health are not yet doing all that they should in this matter. While the advisability of forcing every city and town which comes under the terms of the "Isolation Hospital Act" of 1910 to build a local tuberculosis hospital may be open to debate, there is absolutely no question as to the wisdom of the law requiring towns and cities of 10,000 inhabitants or over to maintain a tuberculosis dispensary. I have every reason to believe that our present state health commissioner is to take immediate and urgent measures to see that this law is enforced and that dispensaries coming up to a certain standard are established in every town or city coming under this act.

The establishment of such dispensaries will greatly increase the efficiency of this after-care work that Miss Billings is doing and will lead to far closer coöperation than now exists between state and municipality. To be really effective, however, every doctor should aim to do for his own private patients exactly the kind of work that is accomplished by a properly run dispensary. In other words, he must not only diagnose tuberculosis in its early stages, and steer the patient to a hospital or sanatorium, but he must look after the patients when they return from the sanatorium.

We believe that this after-care work of Miss Billings has accomplished a great deal during the last two or three years that she has been in our employ. The number of people over whom the influence of this after-care work extends is far greater than the actual number of patients whom she visits. For instance, between July, 1912, and October, 1913, a period of fifteen months, Miss Billings visited 600 patients. These 600 patients, however, had exposed 2601 others; 23% of these were examined for tuber-

eulosis, and of these 12½% were found to have consumption. The first 200 patients in this group, whom she visited early in her work, beginning in July, 1912, had exposed 871 others. Of these it was found that 20% had been examined and that 14% had consumption. While the last 200 patients whom she visited up to October, 1913, had exposed about the same number of others, 824, Miss Billings found that 30% had been examined for signs of tuberculosis, instead of 20% in the first group, and that only 5% were found to have consumption, in place of 14% in the earlier group. This improvement, though slight, is certainly encouraging.

Every physician will at once ask, "How am I to get hold of my patients after they are discharged from the state sanatoria if of their own accord they do not choose to come to me?" I believe that the medical profession must do away with a certain amount of false pride which it now has in seeking out these patients. I believe that the time is at hand when doctors should do more than wait until these patients come of their own accord to their offices, and that they must take some active steps to see that their discharged patients report soon after their discharge and continue to report later on as often as is considered necessary. This certainly is in accord with the attitude of the life insurance companies, certain of which are now demanding that their policy holders be examined once or twice a year regularly, whether they are sick or not. As a general thing, I think that the average tuberculous patient on discharge from any sanatorium should report at once to his local physician, once a month regularly for at least six months, and once every three or four months for two or three years afterwards. I demand this of all my private patients. If this were done as a routine and the need for it explained to the patient, I am sure it would be one of the best investments ever made, not only by the patient himself, but by the state of Massachusetts.

Miss Billings has given me some interesting figures on this subject, based on a study of 100 patients having family physicians, taken at random from those she has visited from July, 1912, to December, 1914. Of these 100 patients, she found that 46 had been examined by their physician on their return, and that 54 had never been so examined. Of the 46 who were examined, 32 saw a physician within the first month after discharge, and 14 later on. Of the 54 who did not see a physician, 22 did not do so because of ignorance or because they did not think it worth while; 22 did not go to see a doctor because they were waiting for some symptoms to arise to make it necessary. These 22 represent the large class of the public who apparently feel that it is better to wait until they are actually sick before seeing a physician, instead of using his services in order to keep from becoming sick. Ten of the 54 patients did not go to their doctors because of

lack of funds. Miss Billings has further subdivided these 100 patients into two groups, the first consisting of 50 patients visited early in 1912, and the second 50 composed of those visited late in 1914. The comparative figures are of interest. Of the first group which she saw early in 1912, 17, or 34%, were examined by a private physician after their discharge; 25% of these, within the first month after discharge, and 8% later on. Of those who did not go to see a doctor, 48% were awaiting symptoms, in 18% it was on account of ignorance, while in no instance was lack of money the reason for not consulting a physician. In the last group of patients whom Miss Billings saw late in 1914, 29, or 58%, were examined by their private physician, and of these 38% within the first month after discharge. Of the 21 patients who did not see a doctor, in only 9, or 18%, was ignorance the reason. In only 4 instances did the patient give as his reason for not being examined, the fact that he had no symptoms; while 10, or 20%, gave financial difficulties as the cause of their not consulting a doctor.

TABLE I.

FIFTY PATIENTS VISITED IN 1912.

Examined by a private physician	17—34%
Patients examined during first month after discharge.....	13—26%
Patients examined after the first month after discharge.....	4—8%
Of patients who did not see physicians there were.....	33—66%
Awaiting symptoms.....	24—48%
Ignorance.....	9—18%
Financial difficulties.....	0—0%
Total	50—100%

TABLE II.

FIFTY PATIENTS VISITED IN 1914.

Examined by a private physician	29—58%
Patients examined during first month after discharge.....	19—38%
Patients examined after first month after discharge.....	10—20%
Of patients who did not see physicians there were.....	21—42%
Awaiting symptoms.....	2—4%
Ignorance.....	8—16%
Financial difficulties.....	10—20%
Total	50—100%

The difference in the figures given in these two groups of cases is marked and shows a most encouraging improvement. Of course it must be realized that the patients whom Miss Billings visits are only a small group of the whole number of consumptives in this state.

This after-care work which Miss Billings is doing should be carried on in every community by nurses, dispensaries, and private physicians. In no instances should lack of funds be an adequate reason for the patients not being exam-

ined. Ignorance as a cause for such lack of supervision and advice after leaving a sanatorium, must be combated by an educational campaign and everywhere the general public must be made to realize that it is far better to spend a little money to prevent sickness than it is to wait until some disease gets a firm grip on the system before consulting a physician.

I feel that the public, as a result of our own efforts, is apt to think too lightly of tuberculosis and to regard it as too easily curable. Ten or fifteen years ago, when Massachusetts was making its first efforts to stamp out tuberculosis, we used the slogan "tuberculosis is curable." This was necessary in order to do away with the pessimism which the name "consumption" had hitherto inspired. At present I feel that we have gone a little too far, and that we must qualify this statement and impress upon the public and upon our patients, that while tuberculosis is curable, it is the most chronic of all chronic diseases; that it is rarely curable in any period under one year, and that the term "arrest" rather than "cure" is a far wiser one to use. It would be an excellent thing if every doctor in this state would impress this point of view upon his patients.

Finally, then, the important points to be borne in mind in regard to this subject are:—

1. Every tuberculous patient at some time or other needs sanatorium treatment.
2. The doctor's responsibility for his patient does not end as soon as he has safely conducted him within the doors of a sanatorium or other institution.
3. The important period in the treatment of the average case of pulmonary tuberculosis is after the patient has left the sanatorium.
4. The medical profession, either by means of dispensaries or other similar agencies, or in their private practice, must *seek out* their discharged sanatorium patients and see that they are under proper supervision and control.
5. Every doctor should play a part in a broad educational campaign to impress upon the public the need of such supervision and control.

TUBERCULOSIS OF THE THROAT.

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THIS paper is mainly a report of the work of the four Massachusetts State Sanatoria for the year 1914. It has taken this form because the material is too abundant to be properly handled in the space allowed for it in the regular yearly report of the Sanatoria, and because in this manner the results of our experience there may be of most use to the medical profession.

The resident physicians of the sanatoria have examined the throats of all the patients under their charge and have recorded the results of these examinations. They have conducted treatment and have done such operations as, under the supervision of the superintendents, they felt competent to do. I have visited each institution regularly for the purpose of supervising the work, for consultation in individual cases and for such operations as were needed. I have also visited them at other times for special cases.

The cases may be divided into two classes, those at Rutland which in the main are earlier cases, and those at the other three sanatoria which embrace cases in all stages, the advanced cases preponderating. It is to be noted that while it is the policy of the management of the sanatoria to reserve Rutland for early and favorable cases it has not been possible hitherto to completely do this. Not only do advanced cases obtain admission but other cases become advanced while there and up to this time several of these cases have remained in the institution.

At Rutland out of 825 patients treated during the year 38 or about 4% had tubercular involvement of the throat, in all cases the process being limited to the larynx or epiglottis. The epiglottis was involved in 7 cases.

At North Reading out of 522 patients treated 39 had throat involvement; at Lakeville out of 725 treated 85 had throat tuberculosis; while at Westfield only 15 cases out of 488 treated had throat disease, this small proportion at Westfield being due to the fact that of this 488 treated 207 were under 16 years of age, not one of whom had any tubercular throat lesion. With the exception of the children at Westfield all these patients were of the same class and so they may be grouped together.

Of 1488 patients treated at North Reading, Lakeville and Westfield, 139 or about 9% had tuberculosis of the throat; of these 23 had involvement of the epiglottis and 6 of the pharynx.

Of the *Westfield* cases 1 improved, 7 remained stationary and 7 died.

Of the *Lakeville* cases 23 improved, 19 were unimproved and 23 died.

Of the *North Reading* cases 9 made substantial improvement, 18 were unimproved and 12 died.

Of the *Rutland* cases 24 either entirely recovered or showed marked improvement, 5 were stationary, 5 were recorded as progressive and 4 died.

Generally speaking, these figures show that tubercular involvement of the throat is a terminal stage of pulmonary tuberculosis, for in no case was a throat lesion found where there was not previous pulmonary disease. But this is by no means universally true, for laryngeal involvement may occur in any stage of the disease. It might be noted here that of 1180 patients who have come under my observation at the tuberculosis clinic at the Worcester City Hospital I

have noted 60 cases of probable tubercular laryngitis. It is to be observed that these were not all tubercular persons but were those who came for examination for suspected tubercular disease.

That marked tubercular involvement of the larynx is not incompatible with prolongation of life is shown by one patient at Westfield. This man is now 60 years of age. In 1904 he was operated on twice at the Massachusetts General Hospital, once for removal of an interarytenoid growth and once for removal of the right arytenoid. Tubercle bacilli were then found in his sputum. Now he has extensive involvement of the left side of the larynx—arytenoid and ventricular band—of a rather dense whitish variety. It does not have the edematous look of active tubercular disease but more of the chronic type. He is now in a fairly good state of health, and as he is a good gardener, Dr. Chadwick is counting on his valuable services in next spring's work.

DIAGNOSIS.

How can we determine the existence of tubercular laryngitis? No symptom is proof positive of it. Hoarseness or pain occurring in a tubercular person is strong presumption of tuberculosis of the larynx but both these symptoms may be present and due to other causes. On the other hand tubercular disease may be present in the larynx and both these symptoms be absent. Positive proof is found only by direct inspection of the larynx. Limited or general infiltration of laryngeal tissues with or without loss of tissue, ulceration, in a tubercular person is proof of the tubercular involvement of the larynx, always bearing in mind the possibility of the co-existence of syphilis. Exception should be made for that irregular papillary thickening between the arytenoids which persists for indefinite periods with no change and also bilateral enlargement of the ventricular bands, not of one band, however, which is probably always tubercular.

I would again like to record our experience that tubercular invasion of the larynx is not accompanied with pallor but on the other hand with redness.

TREATMENT.

The treatment of throat tuberculosis is par excellence what is known as "sanatorium treatment." Tuberculosis of the larynx is a local manifestation of a disease process, more or less widely spread, and always, in our experience, preceded by and associated with disease of the lungs and at times of other organs of the body. Improvement of the local condition is dependent upon the same factors which bring about improvement in the general condition. Local treatment has its value but it must be applied with careful consideration of general as well as local conditions for it may defeat its own ends, not

only increasing the local activity but also adding a too heavy burden to the already overtaxed system.

To formulate our ideas into a working scheme of treatment we divide the disease into three classes: (1) those cases where the larynx is invaded by disease which is also active and progressive in the lungs; (2) those cases where the larynx is involved but the lung lesion is either stationary or moderately progressive, and (3) those cases of terminal disease in which both laryngeal and lung conditions are actively and disastrously progressive. In all cases rest of the larynx as complete as possible is of prime importance.

The Rutland doctors note in the description of their cases "absolute silence" which they are pretty well able to carry out because the patients expect to get well and the whole regime of the institution is based on that idea and so the co-operation of the patient is willing and constant.

In cases of the second class the remedy is as important but more difficult to apply, because the patients feel pretty well but also because as a class they are not so hopeful of ultimate cure, and have not the stamina to put themselves to the inconvenience of enforced silence. Thus Dr. MacCorison at North Reading says "Resting the throat so far as voice is concerned seems to be the most efficient remedy but the most difficult to get patients to carry out. Excessive use of tobacco, with or without fire, has its deleterious effect upon tubercular throats."

In cases of the third class, patients are too sick to talk and moreover talking is apt to be so painful that they voluntarily desist.

In local treatment many medicinal agents have been used, viz.: Dobell's solution, Dobell's with formalin, Dobell's with rose water, steam inhalations of eucalyptol, tincture of benzoin and menthol; argyrol 5% to 10% as spray or application; formalin 1-8%; liquid petrolatum; liquid petrolatum with menthol; lactic acid; Lake's mixture; scarlet red 2% in oil; intra-tracheal injections of guaiacol, menthol in olive oil, guaiacol, eucalyptol, menthol in saturated solution of idodoform in ether; orthoform; heroin 2% solution; cocain 2% solution; novocain 5% solution; tuberculin; injections into the superior laryngeal nerve of alcohol 8%; or of eucain 2 grains in one ounce alcohol 80%; or of quinine and urea hydrochloride; also ice bags and counter irritants to the outside of the throat and surgical measures designed to destroy or remove diseased tissue, such as galvanocautery and cutting out of tissues.

It will be seen that many of these agents apply to any form of laryngitis, specific or non-specific, so that in our summary of what we find distinctly useful in tubercular disease we will leave out such.

It is a matter of first importance to keep the larynx clean and free from sticky mucus and

for this purpose we have found nothing better than Dobell's solution. Dr. Lyon, at Rutland, combines rose water with this in the proportion of one drachm to four ounces. Lactic acid and formalin still hold their place for their action upon tubercular ulcers. They are combined in Lake's mixture which consists of formalin, 7 parts; lactic acid, 50 parts; glycerine, 20 parts; water to 100 parts. Menthol in liquid petrolatum, five grains to the ounce, makes a soothing spray and Dr. Burns finds liquid petrolatum freely used very useful in extensive pharyngeal and laryngeal ulcerations. In cases where the trachea is inflamed and especially when it is covered with sticky mucus, intrachel injections are of great value; guaiacol 80 minims, menthol 80 grains, sterilized oil one ounce or guaiacol 9 parts, eucalyptol 2 parts, menthol 1 part in a saturated solution of iodoform in ether up to 100 parts as used by Dr. Lyon.

Tuberculin is used in all of the sanatoria. It has no special efficacy in throat cases.

Pain we have not found to be an important symptom unless the epiglottis is involved and then it may be very distressing. For this we have used orthoform lozenges, a spray of 2% solution of cocaine before eating or a tablet triturate of cocaine, 1/12 grain laid on the back of the tongue. In extensive involvement of the larynx and epiglottis with ulceration I have found this powder useful,—paraformaldehyde 1 drachm; orthoform, 1 drachm; compound stearate of zinc 48 grains; cocaine, 10 grains, and sulphate of morphia, 10 grains.

We have used the method of injections into the superior laryngeal nerve with varying success but with enough success to encourage its further use. When we consider the small size of the nerve and how loosely it lies in the tissues it is manifestly difficult to hit it every time, so that it is a procedure where increased experience peculiarly gives greater guaranty of success. The technic is as follows,—after the skin has been properly prepared, to search with pressure of the finger for the spot under which the nerve lies. In a certain number of cases this may be determined by eliciting pain which appears to run toward and to the ear. While it is difficult to locate the exact point in persons suffering from laryngeal disease it can be done upon well persons more readily, so that it is useful to attempt to locate it either upon one's own self or on the throats of friends by pressing above the thyroid cartilage in the space between it and the hyoid bone. In this way one can get approximately the point of entrance of the needle which is plunged into the tissues about one-half a centimeter and a drop or two of the solution expelled. If the right spot is reached the pain running to the ear is evident and then the contents of the syringe is slowly injected although before the syringe is emptied the pain to the ear should disappear.

At North Reading the eucaine and alcohol

mixture was used; one patient had five injections, two of 1 c.c. and three of 2 c.c. Relief followed the first three injections and a repetition was requested but no relief followed the last two. They were done October 9, November 5, 11, 24, and 25; the last note was that patient was in very poor condition but complained little of throat discomfort. Another injection was given December 7; there was considerable relief for a few days but the patient died on January 6. Still another patient was injected on December 7; there immediately followed an increase of subjective symptoms which subsided after a few hours. On December 12 a note stated that the symptoms remained unchanged. On January 15, however, that there had been relief of pain lasting two weeks; the patient died on January 20.

Dr. Chadwick, at Westfield, had, I believe, a similar experience; the symptoms were increased after the injection but later passed away and the relief was sustained for a considerable period. So also did Dr. Lyon at Rutland whose note reads "Injection of 1 c.c. of 80% alcohol in superior laryngeal nerve causing extreme pain extending over a period of four days following which the larynx became completely anesthetized for several weeks." In another patient of Dr. Lyon the injection of 1 c.c. was followed by aggravation of the symptoms for a week. Then 2.5 c.c. of quinine and urea hydrochloride was injected which was followed by complete relief which was maintained for a long period. In still another patient a similar happy result followed, a terminal case which had been unable to swallow without pain for a long time; in this case 2 c.c. of this solution was used.

Dr. Howes, at Rutland, had a similar case; "After injection of 1 c.c. 50% alcohol pain ceased for about an hour and then returned with increased severity. Injection of 1½ c.c. quinine and urea hydrochloride resulted in diminution of the pain."

I might add a case I have had recently at the Worcester Tuberculosis Hospital, a terminal case with extensive lung disease; the larynx and epiglottis were much diseased and there was ulceration in each tonsil. Injection of 1½ c.c. 80% alcohol was followed by relief of the pain and the patient said that what I did "opened up his throat." The relief from pain was maintained until his death several days after the injection.

OPERATIONS ON THE EPIGLOTTIS.

We have operated on the epiglottis four times, to which I desire to add one case occurring in my private practice. Of these Dr. Lyon performed one while I did the other four. Four were complete removal of the epiglottis and one was partial removal of the epiglottis under local anesthesia with the angular punch forceps.

The first operation was on a Rutland patient; a man, 46 years; an ambulant case; the lung condi-

tion was noted as being progressive. There was a tubercular ulceration on one side of the epiglottis and pain on swallowing. On April 27, 1914, I removed the diseased tissue, cutting well into healthy tissue and removing one-half of the epiglottis. Subsequent notes "complete healing followed; all pain disappeared; no recurrence." I have recently seen him and the last statement holds.

The second case was a Westfield case; man about 35; admitted April 9; epiglottis badly swollen; arytenoids injected and swollen; right cord irregular in outline, probably tubercular deposits; marked pain and hoarseness; upper half of both lungs involved; general condition poor. Local anesthetics gave but little relief. Alcohol injections gave considerable relief for about 12 days. I removed the epiglottis on May 30. There was immediate and complete relief which lasted a month when the disease appeared in the pharynx. He died August 8.

The third case was a North Reading patient; admitted May 6, 1914; advanced, bilateral lung disease; left side densely infiltrated; bed case; the epiglottis was infiltrated and there was much pain. The operation was done June 14 and the notes say that there was considerable relief. The patient died September 30.

Dr. Lyon's case was an out-patient at the Rutland Sanatorium; a man of 21 years; lung condition moderately advanced and not actively progressive; epiglottis much involved, also right arytenoid; pain on swallowing very severe. Injection of 1 c.c. 80% alcohol caused marked increase of symptoms; injection of quinine and urea hydrochloride 2-2½ c.c. gave entire relief of pain. After this, on November 15, the epiglottis was removed. At first the patient had some difficulty in swallowing, owing to the absence of the epiglottis, but this soon passed away. At first he was much relieved of his symptoms and he returned to his home in Springfield to await admission to Westfield. February 9, 1915, he was having much pain and difficulty in swallowing and was not likely to live long.

The case that occurred in private practice was of especial interest in showing how pulmonary and laryngeal disease could progress without definite symptoms. Man, married, 53 years, a gardener. He came to me from a neighboring town 12 miles away for sore throat, no lung trouble being suspected by his physician. He said he had always been well except that he had "winter cough" for several years which he did not think of importance enough to see a doctor. When he was 25 his father died of hemorrhage of the lungs. He had worked at his occupation up to two weeks before the time he consulted me. The epiglottis was extensively infiltrated and ulcerated. On careful physical examination pulmonary disease of moderate extent and intensity could be made out in both lungs. Pulse 96, temperature 98.8, loss of weight from 140 to 122 pounds. Considering his previous and recent good health and moderate lung involvement I thought the removal of the epiglottis worth while in hopes that he might be able to eat better and so regain some health and strength. Accordingly, on March 30, I removed the epiglottis. Pathological examination proved the disease to be tubercular. Only moderate relief followed the operation. When the epiglottis was out of the way the larynx was found to be extensively involved. June 8 he was able to come in to see me but was in wretched condition. He died August 15.

It is pretty hard to define any general rule for procedure in these cases. In a general way our experience teaches that when the epiglottis is involved to a limited degree, especially if the lesion is nearer the tip than the base, if the larynx is not involved or to limited extent, and the patient is in fairly good condition then the operation is clearly indicated. It will be noted that one of the patients of this group has at the end of ten months no sign of recurrence and for that period has not only escaped the danger of the extension of the local disease but has been relieved of suffering and inability to take sufficient food on account of pain. The Westfield patient was very grateful for the relief the operation brought and was glad he had it done.

GALVANO-CAUTERY.

I have employed this agent in two cases

CASE 1. A Westfield patient admitted December 26, 1912. April 20, 1914, left ventricular band injected and swollen, also left arytenoid. May 3 left ventricular band much more swollen than any other part of the larynx. Slight pain and huskiness. Right lung involved throughout: one-half of left; general condition good. I made four applications of galvano-cautery by the indirect method at about three weeks intervals. Result—on September 29, throat feels better, voice clearer, swelling less marked, general condition improved.

CASE 2. A Rutland case; man, age 42; pulmonary disease quiescent. Papillary growth on the posterior end of left vocal cord which was treated for several weeks with no benefit; then galvano-cautery was applied; after three applications the cord cleared up but a similar growth appeared on the right cord at point of contact during pronation; same treatment with like results; up to the present time the growths have not recurred and except for a slight roughening the cords appear normal.

I think that this treatment is worthy of wider application. Unfortunately, as yet, we have not been able to get a suitable apparatus for galvano-cautery adapted to the form of electricity in use at the sanatoria and both these patients came to my office for treatment. When we do get it we should have a fuller experience to report.

RÔLE OF THE TONSILS.

The rôle of the tonsils in the infection of tuberculosis is an interesting subject which we have tried to study from a clinical side, namely in examinations of patients to note the presence of tonsils, also the frequency of any apparent disease in them or the history of past trouble. I have also studied this question carefully in the tuberculosis clinic at the Worcester City Hospital and in private practice. We feel that the tonsils are not the definite factors in the infection of tuberculosis that they are by some thought to be. As at Westfield there is a group of children, I asked Dr. Chadwick to make a statement on this subject and the following is a copy of his letter.

"I have had the children's records looked up and some of those who have been discharged; altogether 131 patients under 16 years of age.

We find that 87 of this number show no abnormal condition of the throat; 21 have large tonsils, 23 slightly or moderately enlarged tonsils. Six of this number I operated on and removed the tonsils and adenoids. The condition in the others did not call for operation because they had no symptoms of obstructed breathing.

In our children's ward at the present time there are 69 children. Of this number 11 had but one tonsil slightly enlarged or moderately so. It was noteworthy in 10 of the 11 that the right tonsil was the one which showed enlargement. In 6 both were slightly enlarged, 6 both moderately enlarged and 10 both large.

Although I have no statistics as to the percentage of large tonsils among the group of children such as we find in the public schools, my opinion is that the percentage of large tonsils would be fully as large as I found in this sanatorium group.

There seems to be no relationship between the cases with but one enlarged tonsil and the diseased lung. Pulmonary disease is not more frequently found on the corresponding side. In fact most of these children under 12 years show bronchial gland infection as shown by consolidation of the area between the scapulae.

I agree with you in the statement which you quote, namely,—we are of the opinion that the rôle of the tonsils in the infection of tuberculosis has been very much overestimated."

Medical Progress.

RECENT PROGRESS IN GENITO-URINARY SURGERY.

BY PAUL THORNDIKE, M.D., BOSTON.

KIDNEY AND URETER.

Infections. SWEET and STEWART. (*Surgery, Gynecology and Obstetrics*, April, 1914). The authors believe there is an extensive network of lymphatics connecting those of the bladder and those of the kidney, and that ascending infections travel through this system and not through the blood stream or through the ureteral canal.

BARBER and DRAPER. (*Journal of the American Medical Association*, January 16, 1915.) This paper represents a study of the relation which impaired ureteric function bears to renal infections. The conclusion reached is: "The integrity of the factor of safety which protects the kidneys from hydropic degeneration appears to depend directly on the unimpaired prostatic valve of the ureter, indirectly on the integrity of the ureterovesical valve, and most interestingly on the relationship between these physiologic and anatomic barriers."

COLE. (*Journal of the American Medical Association*, January 23, 1915.) Cole experi-

mented on the effect of the colon bacillus on the kidney and concluded: 1, that a non-traumatized kidney, in the absence of ureteral obstruction, will overcome the bacterial invasion; 2, that the blood stream is the means of extension of these infections from renal pelvis to cortex, and vice versa, and probably, also, from periureteral tissues to the renal parenchyma; 3, that the pathological changes are due to a direct toxic action, soluble toxins being carried also to the opposite kidney.

HARTUNG. (*Berliner Klinische Wochenschrift*, April 20, 1914.) This paper reports sixty experiments in which a one-sided, artificial hydronephrosis is reduced to the effects of various infections studied by comparing the two sides. This work again emphasizes the great rôle hydronephrosis plays as a cause of renal infections.

Calculus; Calculous Anuria. DAVIS. (*Surgery, Gynecology and Obstetrics*, June 6, 1914.) This article is interesting and important because of the writer's statement regarding reflex anuria. He says that the possibility of its existence cannot be denied, but that convincing proof is lacking and that the few cases reported of a reflex inhibition of an unobstructed, but more or less diseased, kidney as the result of calculus obstruction of its fellow are better explained as the functional failure of an overloaded, unsound organ.

Collargol Injections. Numerous papers have been printed during the year dealing with the dangers connected with injecting collargol into the renal pelvis.

WOSSIDLO. (*Archives für Klinische Chirurgie*, Vol. ciii, No. 1.) EISENDRATH. (*Journal of the American Medical Association*, May 2, 1914.) KEYES and MOHAN. (*Journal of Medical Sciences*, Vol. cxlix, No. 1.) The danger seems to be universally recognized and extreme caution advised. Doubtless the near future will produce a technic which can be used with greater freedom and less anxiety to the operator.

YOUNG. (BOSTON MEDICAL AND SURGICAL JOURNAL, April 15, 1915.) In this paper, which has just appeared, Young reports the result of three months' work at the Massachusetts General Hospital with an emulsion of argentide. The summary of his paper states that "collargol is an absorbable kidney poison when used in the renal pelvis." The emulsion of argentide as described here is a clean, non-absorbable, opaque fluid which can be used with minimum danger to the patient and maximum satisfaction to the surgeon.

Tuberculosis. HARBITZ (*Norsk Magazin for Lægevidenskab*, November, Vol. lxxiv, No. 11) reports findings of an old encapsulated, tuberculous process in twelve cadavers at autopsy. He says, "The process had evidently run its course and become encapsulated spontaneously with what amounted to a clinical cure," but, on the other hand,

WOOLSEY (*American Journal of Surgery*, Vol. 28, 1914) insisted upon the propriety of the well recognized present-day custom of early operation, and feels, with most surgeons in this part of the world, that climatic treatment is a waste of time and an unnecessary risk.

BUERGER (*Interstate Medical Journal*, Vol. xxi, No. 11) reports in detail a most unusual case of primary tuberculosis of the renal pelvis and asserts the possibility that in chronic renal tuberculosis bacilli may be filtered from the blood to the renal tubules and from these in turn to the surface of the papillae or calyx recess, where they form a lesion; the anatomical disposition of those parts making for stagnation and poor drainage.

Blood Cyst. O. WULFF. (*Hospitalidene*, Copenhagen, Dec. 9, Vol. lviii, No. 49.) This paper chronicles two unusual cases of symptomless but persistent hematuria in young men in which nephrectomy showed in each case a single benign cyst filled with blood. The cysts were both in the upper pole of the kidney, and the writer says there are only fourteen such recorded cases and that most of these were in children.

Kidney Transplantation. ZAALJER (*Beitrag zur Klinischen Chirurgie*, Tübingen, Vol. xciii, No. 2) details possibly the only case where a kidney was transplanted in a dog from its normal site to the groin and was found adequately functioning and of normal size and consistency six years later. The article is illustrated and the technic is carefully explained.

BLADDER.

Cystectomy. It has long been recognized that operations for malignant disease of the bladder wall have been ineffective and often worse than useless. The point of view that holds such cases should be let alone or else treated by operations of a very radical nature is being more and more insisted upon.

CHUTE (*Journal of the American Medical Association*, December 26, 1914), and SQUIER (*Journal of the American Medical Association*) both advocate more radical operating, and the latter presents a carefully detailed technic for the operation which he calls sub-total cystectomy.

Iodine Fumes in the Treatment of Tuberculous Cystitis. Mention has already been made in previous reports of this method of treating tuberculosis in the bladder, and now NORMAND (*Journal d'Urologie*, Paris, March, 1915, Vol. No. 3) reports a considerable personal experience. He claims satisfactory results, describes the technic, discusses frequency of treatments and says his method is indicated in all cases, both primary and secondary, except during acute exacerbations.

Myiasis. KING. (*Journal American Medical Association*, December 26, 1914.) Larvae of many flies have been found in man, a common one being the *fannia scalaris* or latrine fly. The

literature of the subject is limited and therefore King's case is of interest and value.

PROSTATE.

Since the operation of prostatectomy has become so universally used, much is being added to our knowledge of prostatic cancer, and during the last year a number of notable papers have appeared dealing with this subject.

FREYER (*Archivus Internationalis de Chirurgie*, Ghent, Vol. vi, No. 4; paper written in English) finds that 134, 10% of 1276 cases of enlargement in his own private practice, were cancerous. The difficulty of diagnosis is dwelt upon. Hematuria, he says, is a rare symptom, occurring only in advanced stages, and profuse bleeding points usually to simple adenomatous enlargement rather than to cancer. He makes it clear that cancer may develop in a prostate previously the seat of adenomatous enlargement, and he reports eight cases where such cancerous development occurred and was confined within the limits of the prostatic capsule at the time of operation.

MCGRATH (*Journal of the American Medical Association*, Sept. 19, 1914), in a paper from the Mayo clinic, compares the epithelial changes in prostatic cancer with those of mammary carcinoma, asserts its frequency after fifty years of age, names the posterior lobe as its usual site, and states that it usually occurs at first as a small nodule of slow growth and therefore that "careful investigation of the posterior lobe, gross serial sections of the specimen with microscopic examination of doubtful areas, are essential for diagnosis in the majority of cases."

YOUNG (*American Journal of Urologie*, June, 1914) reports a series of cases, calls attention to the fact that a study of two hundred cases, most of them advanced, shows that ulceration of both vesical and rectal mucosa is uncommon, and intravesical tumor growth equally so. He says two layers of Denonvillier's fascia are largely responsible for confining the cancer to the prostate and thus protecting the rectum. Young's paper includes a description of technic for a radical operation and reports six of his own cases where such an operation was performed.

Syphilis. WRIGHT (*Transactions of Chicago Urological Association*, November, 1912) reports a case of syphilis of the prostate, which is mentioned here because of its rarity.

Colliculectomy. RYTINA (*Journal of the American Medical Association*, Jan. 2, 1915) describes an instrument and an operation for the radical removal of the verumontanum, a procedure which he thinks "less liable to untoward complications and sequelae than strong applications of silver nitrate thermocautery."

TESTIS.

Tuberculosis. BARNEY. (*Journal of the American Medical Association*, Dec. 26, 1914) Bar

ney's rather statistical paper is of value because of the material back of it. He points out the fact that in genito-urinary tuberculosis (a useless term) it is the genital tract which is usually first affected, and that the process is secondary to similar disease in other parts of the body in more than half the cases. He quotes one hundred epididymectomies, an operation which he highly advocates, and says that in no case has the necessity arisen for a subsequent orchidectomy,—a most unusual experience.

SIMMON. (*Beiträge zur Klinik der Tuberculose*, Würtzburg, Vol. xxxiii, No. 1.) This paper is interesting in connection with the one above, as substantiating more or less Barney's statement that the genital tract is usually the first to become involved. The writer quotes findings in 105 cadavers in which the genital system was alone involved, and in 95 other cases the tuberculous process had affected the kidney or the bladder as well. In the genital tract he believes the prostate to be the primary seat in about half of all cases; the seminal vesicle and testis about 25% each.

Tumor. HINMAN. (*Journal of the American Medical Association*, Dec. 5, 1914.) This really valuable paper, which describes new and radical technical procedure, also points out that in almost every case of cancer the earliest metastasis occurs first in a limited area of lymph nodes in the lumbar region, between the bifurcation of the aorta and vena cava below, and the renal pedicle above. He also believes that the pathological division of tumors of the testis into embryonal carcinoma and mixed cell types is an arbitrary one, as both are teratomas, and yet such a division is of value clinically, as it seems to be a fact that the former class is less likely to metastasize, although of more rapid growth, while the latter, although of slower growth, has a smaller percentage of cures from operation.

Sterility. WHEELER (*British Medical Journal*, Feb. 7, 1914) describes an ingenious anastomosis operation for the vas deferens in which the divided ends are passed over the eye and point of a fine needle until they meet. Sutures are then inserted, and finally the needle is pushed through the wall of the vas at a distance from the point of union.

LESPINASSE (*Journal of the American Medical Association*, Nov. 28, 1914) describes an ingenious operation for male sterility in those cases, more than half of all of them where the vas is obstructed above the internal ring, and behind where ordinary anastomosis is impossible. The operation aims at the production of an artificial sac, communicated with the epididymitis and serving as a receptacle and storehouse for the sperm discharged into it. This sac can be tapped whenever sperm is desired for impregnating purposes. At the time of publication this method had never been tried on men, but the writer had operated seventy-one times on dogs. This seems

a somewhat fantastic article, but is really a clever and an interesting idea.

GONOCOCCUS.

CRABTREE. (*Journal of Infectious Diseases*, Sept. 19, 1914). This paper is written to combat Warden's contention, which was briefly that the staphylococcus albus, under certain conditions, loses its power to hold Gram's stain, and that intracellular diplococci in the pus of gonorrhea are probably not gonococci at all but are the Gram negative staphylococci in diplococcal form. Crabtree concludes that the staphylococcus albus has no stage of growth in which it is a gram negative organism and, therefore, that Warden is wrong.

TESTS FOR RENAL FUNCTION.

In 1909 Rowntree and Geraghty advocated the use of phenolsulphonephthalein as a test for renal function. They believed that many of the difficulties which pertained to other similar tests had been overcome, and their contention was sustained by the publication, during the next few years, of a large number of articles all over the world. Now comes the report of many observations in this very significant and valuable paper from the Mayo clinic.

BRAASCH and THOMAS (*Journal of the American Medical Association*, Jan. 9, 1915) Their conclusion so entirely coincides with the writer's point of view in such matters that he cannot refrain from printing it verbatim. "We should like to emphasize that it is not our purpose to belittle Geraghty and Rowntree in their thoroughly scientific efforts to establish a chemical estimate of renal function. The phenolsulphonephthalein test, because of the ease of application and rapidity of secretion, remains as probably the best functional test at our command. Nor is it our purpose to detract from the value of a careful examination of the character of ureteral secretion in surgical conditions of the upper urinary tract. It is our contention, however, that the fundamental surgical principles and clinical data should determine whether or not an operation is indicated; and that renal functional tests are of practical value largely as an aid to differential diagnosis and only to a limited degree as a prognostic aid."

MILLER and CABOT. (*Archives of Internal Medicine*, March, 1915.) The writers have used the phenol sulphonephthalein test as a means of studying the effect of anesthesia and operation upon kidney function in 422 cases at the Massachusetts General Hospital. Some of their conclusions follow: "The output of phenolsulphonephthalein by the kidneys grows progressively less with advancing years. There is a normal daily variation in its excretion influenced by many factors. After operations under ether there is a decreased output, the decrease being greater in laparotomies than in the general average, and considerably greater in cancer cases.

The sooner after operation the test is done the greater the decrease, the output returning to about normal in from twenty-four to forty-eight hours. The more ether that is used and the longer the operation, the greater the decrease in phenolsulphonephthalein excretion. Some cases show no decrease, others great decrease or almost total inhibition of excretion without discoverable cause. Shock causes great decrease, as does also any condition of much impaired vitality. There is no definite relation between decreased drug excretion and the occurrence of albuminuria after operation."

Creatinin Test. In this day, when many tests for renal function are receiving attention and interest from the profession, this one of NEUBAUER (*Münchener Medizinische Wochenschrift*, April 21, 1914), is not without interest. He states that if 1.5 grams of creatinin are dissolved in 100 or 150 c.c. of sweetened water and are given to patients, those with normal kidneys will eliminate from 60 to 90% of the creatinin in the next six hours, while those with diseased kidneys will eliminate but 20% or less during that time, the remainder of it taking days to be disposed of. The test does not seem to be one of those destined for general usefulness, but is of interest and may be of importance in many cases that are of a non-surgical character.

Complement Fixation Test. McNEIL (*New York Medical Journal*, August 22, 1914). Three years ago the writer of this paper presented certain conclusions regarding this test, as follows: "A positive reaction denotes the presence of recent activity in the body of a focus of living gonococci. A negative reaction does not exclude gonococcus infection but is of considerable importance. A strong positive reaction is not to be expected earlier than the fourth week, and then only in very acute cases with some complication, and the reaction does not entirely disappear until seven or eight weeks after cure. A positive reaction is not obtained if the disease is limited to the anterior urethra."

This present paper is of value because it is based upon 5381 examinations made at the serological laboratory of the New York Health Department. It does not, however, materially alter the conclusions instanced above, which the writer published in the former paper.

Hexamethylenamin. The almost universal use of this drug as a urinary antiseptic has brought forth during the last year numbers of articles concerning its real value, and the following paper is typical of many others.

L. H. LEVY AND A. STRAUSS. (*Archives of Internal Medicine*, Chicago, November, 1914.) The conclusions reached are, that to be of value formaldehyd must be liberated in strengths varying from 1 to 15,000 to 1 to 5000, depending upon the organism to be inhibited; or from 1 to 5000 to 1 to 1000 as a bacterial drug; in this latter case, also, depending upon the organism present. High acidity is necessary in all cases

excepting typhoids, and this high acidity, combined with the formaldehyd present may produce injury to kidney tissue.

Grosz (*Wiener Klinische Wochenschrift*, May 28, 1914) advances the following technique as a test for the presence of hexamethylenetetramine in the urine: "Add to the urine enough 10% acetic or hydrochloric acid to five-fourths or four-thirds the total; then add, a drop at a time, a saturated aqueous solution of mercuric chloride. A fine-grained sediment is positive."

Reports of Societies.

THE SUFFOLK DISTRICT MEDICAL SOCIETY.

A MEETING OF THE SURGICAL SECTION, FOR THE DISCUSSION OF HOSPITAL EFFICIENCY, WAS HELD AT THE BOSTON MEDICAL LIBRARY, WEDNESDAY, JANUARY 6, 1915.

The following papers were read:

HOSPITAL EFFICIENCY FROM THE STANDPOINT OF AN EFFICIENCY EXPERT.¹

By MR. FRANK B. GILBRETH, Providence, R. I.

HOSPITAL EFFICIENCY FROM THE STANDPOINT OF A HOSPITAL SURGEON.²

By DR. ROBERT L. DICKINSON, Brooklyn, N. Y.

HOSPITAL EFFICIENCY FROM THE STANDPOINT OF A HOSPITAL SUPERINTENDENT.

By DR. HERBERT B. HOWARD.

HOSPITAL EFFICIENCY FROM THE STANDPOINT OF A HOSPITAL TRUSTEE.³

By DR. WALTER WESSELHOEFT, Cambridge, Mass.

HOSPITAL EFFICIENCY FROM THE STANDPOINT OF A PUBLIC SERVANT.

By HON. JAMES M. CURLEY, Mayor of Boston.

DISCUSSION.

DR. JOEL E. GOLDSWORTHY: In the organization of most of our hospitals the trustees are the legal owners of the property or are the agents of the actual owners. It is their duty to see that the property for which they are responsible is developed in the best possible manner and that it is made to pay the largest possible dividends in the form of medical service. As a part of their duty a staff is selected and appointed for the particular purpose of attending to the medical care of those to whom the service is offered. As a still further part of their duty a superintendent is appointed to see that the mechanical part of the maintenance of the institution is properly cared for. A superintendent of nurses is appointed to see that the nursing is prop-

¹ See JOURNAL, page 774.

² See JOURNAL, page 775.

³ See JOURNAL, page 778.

erly developed. A social service worker should be appointed to act for the trustees to see that those being received into the wards are suitable cases and also to see that the hospital work is checked up in relation to efficiency by keeping track of the patients after they leave the hospital. These and other appointments should be made for the purpose of developing the work upon the broadest lines and in the most efficient manner that is possible.

All of these appointments should be made by the trustees and the appointees should be directly responsible to them. With the staff they are not only directly responsible to the trustees, but the two bodies should meet together from time to time to discuss methods of development of the work and for interchange of opinions. The lack of opportunities for meeting between these two bodies is one of the greatest reasons for the inefficiency of the service in some of our institutions today.

Since the final authority and responsibility rests with the trustees, the work of the staff should be carefully scrutinized to be sure that the work is being properly performed. It is not an uncommon thing to find occupying staff positions in our institutions today, busy men, too much absorbed in private or other work to attend properly to the work of the hospital. A man's reputation should not be the thing that determines his selection or his continuance upon the staff, but the character of his work alone should be the test. If he has not time to organize or perform the work, he is a hindrance to the hospital, no matter how great his reputation may be. The "output" under some younger or less known man would be vastly greater. It is the duty of the trustees themselves, or through unprejudiced experts, to pass upon the character and efficiency of this work. In considering the staff the laboratory heads are, of course, included, the same scrutiny being given to the work performed there as to the work in the wards.

The superintendent is appointed by the trustees and should naturally be expected to develop the mechanical part of hospital life in the best possible manner, and the same high standard of efficiency should be insisted upon from him as from the staff. The staff should in no way be responsible to the superintendent, since their work is entirely different and each should be held responsible to the trustees, and not each to the other.

The superintendent of nurses should also report directly to the trustees and not through the superintendent of the hospital, since their functions are naturally different.

The social worker, if used right, is one of the most valued aids to the trustees in determining the character of the work performed. The result of the work done should be known not only when the patient leaves the hospital, but at intervals extending over many months, the ultimate result being that which interests the patient most and should be of the greatest interest to the trustees as well as to the staff. The most practical method of keeping up this part of the work is the system of "follow-up" cards such as have been urged so strongly by Dr. Codman.

Each of these departments is part of the hospital machine. Each is important. Each should know what the other is doing and for this purpose meetings should be held, at which each department is represented, for opportunity for free exchange of ideas as they apply to the work of the institution. It is team work, and as in other teams the star

player is of little use in the game unless he will subordinate his desire to the general good. No one department is better than another. Each is part of the work, and the final responsibility rests with the trustees.

This body should be so organized that it can not only know what is being done, but so that it can give proper consideration or support to whatever requests are made. Its own efficiency depends upon the organization, and since it is not to be expected that any one individual can comprehend all of the many details of hospital life and service, it at once means that the whole body should be divided into committees. Those with proper training should look after the finances and see that the purely business part of the work is satisfactory. Those having medical knowledge should be responsible for the medical oversight of the work, with any other subdivisions as are needed, but with the entire board meeting at sufficiently frequent intervals for all to be in a general way familiar with the work as a whole. So much is involved in this that great care should be given to the selection of the members of such boards so that the broadest kind of medical and business direction can be given by the body that is held ultimately responsible.

Book Reviews.

Case Histories in Diseases of Women, Including Abnormalities of Pregnancy, Labor and Puerperium. A Clinical Study of Pathological Conditions Characteristic of the Five Periods of Woman's Life. By CHARLES M. GREEN, A.B., M.D., Professor of Obstetrics and Gynecology in Harvard University; Senior Surgeon for Diseases of Women, Boston City Hospital; Visiting Physician, Boston Lying-in Hospital. Boston: W. M. Leonard. 1915.

Dr. Green's book presents the collected experience of a lifetime spent in the teaching and practice of gynecology and obstetrics. It is his well-known class-room and clinical teaching transferred to print, and constituting an attractive volume of 477 pages.

It is particularly fitting that Dr. Green should have added this book to the Case History series, for he was the first to use the case history method in teaching at the Harvard Medical School, his first attempt along this line dating back to 1891, when by special permission of the faculty he first instituted a voluntary exercise in obstetrics which subsequently became a required part of the curriculum.

The book is divided into five sections: Infancy and Childhood, Puberty and Adolescence, Maturity, the Climacteric, and Anility. At the commencement of each section is given a brief synopsis of the field covered, which is followed by the illustrative cases. In each division of

the book, the author has followed a logical arrangement by pathological processes rather than by organs. He takes up successively functional disturbances, malformations and displacements, infections, traumata, and neoplasms. This is a great improvement over the ordinary more or less haphazard system of dividing the subject of gynaecology into diseases of the separate organs, since in the pelvis the same pathological process almost necessarily will involve more than one, and frequently all of the pelvic organs.

The cases are presented with simplicity and clearness just as they come to the physician in the hospital clinic or in private practice. The author also goes into many cases drawn from his wide experience in private practice in which delicate moral and ethical questions have arisen, which are not discussed in the ordinary text-book of gynaecology, and are seldom or never encountered in the hospital clinic. These are to be found especially in the portion of the book dealing with adolescence and early married life.

In the section on maturity a series of case histories illustrating the common obstetric difficulties and the more frequent complications of the puerperium is inserted, lending completeness to the work. A number of temperature charts representing pathological puerperia give additional clearness to the text. Dr. Green gives the reader perhaps a little too optimistic view of the results of the treatment of eclampsia and also of the treatment of sterility.

A few excellent illustrations from photographs are added to the text, although the book is not intended to be freely illustrated. There is a very complete index, an important part of any book, and one which is too often slighted.

Altogether the book is one which every practitioner who does obstetrics, whether as a part of general work or as a specialty, should use both for reading up and for reference. He will find situations parallel to those which he himself has to meet and the best way of handling them described in a practical manner. As a text-book for class-room use, the work, in common with the other more recent volumes of the Case History series, would be of greater value in teaching if the cases were presented purely as problems and the answers withheld for discussion by the student and instructor. In the attempt to put out books useful for the practitioner as well as the student, the tendency has been to lose sight of the primary use of this form of text-book.

The Commoner Diseases. Their Causes and Effects. By DR. LEONHARD JORES. Authorized translation by WILLIAM H. WOGLON, M.D. Philadelphia and London: J. B. Lippincott Company.

Jores is professor of pathology and pathological anatomy at Marburg. His book represents a series of 34 lectures in pathology. There are

some 250 illustrations in the text, mostly photographs from pathological specimens. The author does not pretend to cover every branch of morbid anatomy. Inasmuch as he rather strictly adheres to his plan of devoting a chapter or lecture to a single subject or an allied group of subjects, the space allotted to various subjects is often disproportionate, not only to the importance of the subject, but also to the material which must be reviewed. Contrary to what might possibly be assumed from the title, the book is not clinical and does not concern itself with diagnosis or treatment. It does represent, however, a careful, sound, even if rather cursory, discussion of the pathological findings in the commoner diseases.

Modern Medicine. Its Theory and Practice. By SIR WILLIAM OSLER, Bart, M.D., F.R.S.; and THOMAS MCCRAE, M.D. In five octavo volumes of about 1000 pages each. Volume IV. Diseases of the Circulatory System; Diseases of the Blood; Diseases of the Lymphatic System; Diseases of the Ductless Glands; Vasomotor and Trophic Disorders. Philadelphia and New York: Lea and Febiger. 1915.

The fourth volume of this standard text-book by distinguished authors now appears in its second edition. Dr. Osler himself contributes the section on "Vasomotor and Trophic Disorders" and also the chapters on "Acute Endocarditis," "Valvular Heart Disease," "Aneurysm," and "Diseases of the Arteries." Dr. Maude E. Abbott contributes a very remarkable chapter on "Congenital Cardiac Diseases," that is almost a monograph in itself. This portion has been very largely rewritten. Dr. Thomas Lewis appears in this second edition for the first time as a contributor. His chapter on "The Rate and Mechanism of the Heart Beat" is a clear short exposition of that subject. All the chapters are excellent and show the effect of careful revision.

Aids to Dental Anatomy and Physiology. By ARTHUR S. UNDERWOOD, M.R.C.S., L.D.S. New York: William Wood and Company

This manual in the Students' Aids Series aims to form an introduction to the study of dental histology. This third edition has been modified in accordance with the important advances of recent years, notably in the subjects of calcification and the innervation of dentine. This subject of calcification is especially treated in an appendix by Mr. J. Howard Mummery. The chapter on microscopy has been omitted. The book should continue a useful guide to dental students.

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HOSPITAL EFFICIENCY.

IN the spring of 1914, the Philadelphia County Medical Society appointed a committee to consider the ways and means by which the efficiency of hospitals in Philadelphia might be increased. After an extensive study of the situation this committee presented its results in a series of three reports, with an introduction on the principles of hospital efficiency by the secretary of this committee. These results and recommendations were editorially reviewed in the *Journal of the American Medical Association* for February 6, 1915.

On January 6, 1915, a meeting for the discussion of hospital efficiency was held at the Boston Medical Library under the auspices of the surgical section of the Suffolk District Medical Society, and in the issue of the JOURNAL for January 21 we commented editorially on this meeting and on the principles of hospital efficiency

and the methods by which their attainment should be sought. In the present issue of the JOURNAL we take pleasure in publishing the principal papers presented at this meeting and an abstract of their discussion.

The astonishing results which have followed the efficiency crusade wherever the attention of the experts has been focused on any special problem can but encourage us to look for marked improvement in hospital management now that the business of the "happiness factory," as one of the writers on hospital efficiency, whose article appears in this issue of the JOURNAL, has termed the hospital, is being critically studied.

With the general principle of survey work in the hospital, we are in hearty accord. There can be no question but that the wage scale and living conditions of employees in many institutions demand quite as acutely as factories very careful scrutiny. A low cost per capita per day resulting from sweat shop conditions and poor food means, of course, inefficiency, though it has been at times commended.

The patients and the public should receive in every way the maximum in service from the available supply of scientific knowledge and funds. Besides the immediate care of patients, the hospital has a responsibility to the community in establishing standards of hygiene, and the information contained in the records should constitute valuable data bearing on many of the large public questions.

In so far as the purely business part of the hospital is concerned, the checks which have been found to be valuable to commercial ventures, such as hotels and factories, should be instituted. The general introduction of a comprehensive system of institution book-keeping, a problem which has interested the progressive hospital superintendent for years, would be of great value, and it is evident that a closer coöperation between institutions in the matter of the purchasing of supplies must needs lead to a material saving. To this end no studies in efficiency can be carried out for a more worthy purpose or with greater hopes of producing results.

That the attending staffs in many institutions fail to render the maximum service in their care of the sick and that many boards of trustees are delinquent in the seriousness with which they assume their responsibilities cannot be denied. A certain degree of standardization of methods and routine in the care of patients should improve conditions. Careful follow-up systems,

which will show the actual results of treatment, are checks which the trustees and the public must insist upon in order that the character of the work done in the hospital and by the individual attendant may be justly judged.

On the other hand, it is to be remembered that too great systematization tends to produce unthinking routine. The painstaking study of the individual case is what has advanced medical knowledge, rather than a compilation of book-keeping results obtained from the analysis of a large series of cases. Accurate as modern science has made the practice of medicine, it is still, to a degree, an art. The ills from which mankind suffer do not occur with sufficient precision to make the establishment of many of the efficiency tests applicable. It should not be forgotten that the patient is an individual, and that the physician or surgeon in charge is an individual. To minimize this fact and consider the treatment of the patient as simply a piece-work problem and the attendant in the light of a skilled workman would be deplorable.

With the point of view that the shortcomings of the hospital should be placed mainly at the door of the trustees we are not at all in sympathy. By and large, the men who serve as trustees of hospitals are men of integrity and high ideals. They are vitally interested in everything which increases efficiency. They may be misguided in their interpretation of what constitutes efficiency, but it is our opinion that they need guidance rather than condemnation. The whole tendency of today is to break down the traditional barriers between the purely administrative directors of the hospital and the medical staffs. This is evidenced from the increasing number of hospital boards who request a number of members of the attending staffs to meet with the trustees. If this spirit of coöperation is fostered and if, with the combined wisdom of the lay and professional boards, the three essentials of hospitals—"to care for the sick, to assist in the education of students, and to contribute to the advancement of medical knowledge"—are borne in mind, properly directed efficiency studies will play an important part in helping to formulate the broader ideals of hospital service.

Perhaps after all the conclusion of the whole matter is best summarized and stated by the following resolutions adopted as a result of the Boston meeting on hospital efficiency:—

"That the committee of supervision, acting for the Suffolk District Medical Society, ap-

proves of the movement to secure greater efficiency in our hospitals.

"That it believes the adoption of the principles of the 'end result system' in hospitals would be conducive to greater efficiency of those institutions.

"That the president of the society is authorized to appoint a committee which shall inquire into the practical application of this system and shall later make a report and recommendations to the society."

RECENT IDEAS ON VENTILATION.

UNDER the title "Standards of Ventilation in the Light of Recent Research," Professor C.-E. A. Winslow describes the results of the investigations of the New York State Commission on Ventilation during the past year.¹ He points out that the former *bête noir* of sanitarians, carbon dioxide, is no longer to be regarded as a poison; that insufficient ventilation does not mean a lack of oxygen for breathing purposes and an excess of carbon dioxide, as taught only a short time ago. In other words, it is not the chemical composition of the air we breathe that is the important factor, but physical conditions—the temperature, the humidity and the air movement.

Experiments were conducted by the New York commission in two rooms of the College of the City of New York, equipped so that atmospheric conditions in one room could be very closely controlled by apparatus situated in the other. In the observation room over one hundred different subjects in groups of four were exposed for periods of from three and a half to eight hours a day for from one to eight weeks in each series of experiments, to known conditions of temperature and humidity and atmospheric vitiation, and their physiological and psychological reactions, and their mental and physical efficiency were observed and measured by the most exhaustive methods.

Stagnant breathed air, contaminated by a group of subjects so as to contain on an average from 20 to 60 parts of carbon dioxide per 10,000, proved to be entirely negative so far as the elaborate physiological, psychological and efficiency tests were concerned. Quite extreme conditions of heat and humidity (86° with 80% relative humidity) had no measurable effect on the rate of respiration, on dead space in the

lungs, on acidosis of the blood, on the respiratory quotient, on the rate of digestion and rate of heat production (both measured by oxygen consumption), on protein metabolism (measured by determinations of creatinine in the urine), or on skin sensitivity. On the other hand, the working of the circulatory and heat regulating mechanism of the body was markedly influenced by even a slight increase in room temperature, as, for example, from 68° to 75°, with 50% relative humidity in both cases. A high room temperature (86°) produced an average rectal temperature in all subjects of 37.41° C., whereas the rectal temperature averaged 36.73° C. when the room was at 68°. The systolic blood pressure averaged 112 when the room was at 86° and it averaged 116 with the room at both 75° and 68°. The average amount of physical work accomplished during the day was rated as 137 with the room temperature 68°, and 100 with a temperature of 86°. This was in summer. In the fall the figures were 114 and 100 for the same room temperature respectively.

Interesting improvements in the engineering of modern ventilation are explained by Mr. D. D. Kimball, another member of the New York State Commission on Ventilation.² Ten years ago, he tells us, the mechanical efficiency of the ventilating fan customarily used was about 45%. Now, the best type of fan (the multi-blade) has an efficiency of 65%, thus effecting a saving of more than 30% of the power expenditure for ventilation. He describes air washing and the recirculation of the air used for ventilation. The air washer consists of a sheet metal chamber in which air is passed through a heavy mist and then through eliminator plates by which the air is so deflected that the contained moisture is removed. According to the researches of Mr. M. C. Whipple, of Harvard University, the air washer removes from 64% to 7% of dust, certain dusts not being removed to any appreciable extent. Such air washers are used in many industries, such as candy and macaroni making, the preparation of photographic films and in textile manufacturing.

The conclusion reached by the New York commission was that there seemed to be no appreciable difference between washed recirculated air and outdoor air similarly treated so far as bodily comfort is concerned. Naturally the proportion of carbon dioxide is greater when using the recirculated air, but no significance was attached to this fact.

Mr. Whipple thought: "That recirculation provided a plentiful supply of air with no apparent sacrifice of wholesome properties, and that it is a safer source of supply than outside unwashed air." Odors were not noticeable to those occupying the room during the use of recirculated and washed air, although sometimes barely noticeable to one entering from out-of-doors. Recirculation manifestly saves a large amount of heat and, in the opinion of Mr. Kimball, its use may prove to be a great step in advance in the field of mechanical ventilation.

The desiderata in ventilation would seem to be, regulation of the room temperature, generally elevated by the numerous bodies of human beings at 98.4°, regulation of the humidity, also raised by the respiration and perspiration of the people in the room, and washing the air and keeping it constantly in motion.

REFERENCES.

¹ *Science*, April 30, 1915, pp. 625-632.

² *Ibid.*, pp. 632-636.

THE VETO OF THE CLEAN MILK BILL.

IN various previous issues of the JOURNAL we have from time to time commented editorially on the so-called Labor Clean Milk Bill in various stages of its legislative progress, and in last week's issue we published the circular letter of the president of the Massachusetts Medical Society urging the signature of the bill by the governor. Unfortunately the governor's unexpected and regrettable veto of this bill, which was returned to the Senate on May 20, puts a check at the last stage to this desirable piece of public health legislation, unless sufficient strength can be mustered by its advocates in the General Court to pass the measure over the veto.

The subject of clean milk legislation has been agitated before the public for over five years, and previously the Ellis milk bill, the predecessor of the present measure, after being successfully passed by the legislature, has been killed by the gubernatorial veto. Apparently the decision to veto the present measure was, in part at least, influenced by a meeting held in Worcester on May 19, at which five hundred milk producers, representing thirty-four cities and towns of Worcester county, unanimously adopted a resolution of protest requesting the governor to veto the bill. In his veto message, the text of which is printed in another column, the governor states that there is already suffi-

cient law on the statute books to protect milk consumers; that the proposed bill is so stringent that it would only impose additional hardship on Massachusetts farmers and milk producers without giving consumers enough additional protection to justify the legislation. The message lays especial further stress on Chapter 744 of the acts of 1914, relative to the production and sale of milk, which, it is alleged, furnishes all the protection necessary:—

“Chapter 744, acts 1914, makes it unlawful for any producer of milk, or dealer, to sell or deliver for sale in any city or town in the commonwealth any milk produced, or dealt in by him, without first obtaining from the board of health of such city or town a permit authorizing such sale or delivery. Provision is made in the act for examinations of the place in which such milk is produced and the boards of health are further authorized to make such reasonable conditions in the permit as the board may think suitable for protecting the public health.”

Naturally these reasons will not appear satisfactory or adequate to members of the medical profession and to others who have coincided with the JOURNAL in its editorial opinion, strongly advocating the passage of the clean milk bill. Apparently this desirable piece of legislation, again nearly at its consummation, has again been defeated by the influence of milk producers who, in the past, have uniformly opposed this and similar legislation. It is still possible, however, that the bill may be enacted into law by a two-thirds legislative vote passing it over the governor's veto. Circular letters, urging this action, have already been sent to all members of the Senate by the Boston Milk and Baby Hygiene Association and the Massachusetts branch of the American Federation of Labor. It is earnestly to be hoped that physicians and all others who have concerned themselves with this measure of public health will again give their support and aid by writing to their senators and representatives, urging the passage of the bill in this definitive manner.

Since the above was in print, the Senate, on May 21, by an almost strictly party vote, sustained the governor's veto.

COMPLIMENTARY DINNER TO DR. THEOBALD SMITH.

THE postponed complimentary subscription dinner to Dr. Theobald Smith, upon the

occasion of his completion of more than twenty years of service to the Harvard Medical School, is to be held at the Harvard Club, Boston, on Wednesday evening, June 2, at 7 p.m. In the issue of the JOURNAL for March 18 we published a brief editorial statement of Dr. Smith's services to his college and to the advancement of medical science, and extended to him the felicitations of the profession and the expression of its cordial good wishes and confidence in his promise of even greater achievement in the new and larger duties to which he goes, in conjunction with the work of the Rockefeller Institute for Medical Research in New York. To these feelings are now added those of grateful congratulation for his happy recovery from the illness which made necessary the postponement of this meeting in his honor. President Lowell is to preside at the dinner and already 150 acceptances have been received, so that a large and successful gathering is assured. It is even more to be desired, however, that as many physicians as possible should take advantage of this opportunity to express the appreciation and realization of the profession of the importance and distinction of Dr. Smith's service to medical science and research, and all who have not already planned to attend this occasion are cordially invited and urged to do so. The subscription (\$5.00) of all those wishing to take part should be sent prior to the dinner to Dr. Marshal Fabyan, 379 Commonwealth Avenue, Boston.

VOLUNTEERS FOR THE HARVARD SURGICAL UNIT.

ATTENTION is called to the notices published on the last page of this issue of the JOURNAL, calling upon physicians and nurses to volunteer for service, in England or in France, on the second Harvard surgical unit, now being organized. The expedition will start from Boston early in June, and is destined for six months' service in Europe, until January 1, 1916, unless the war is sooner ended. The details of this work are stated in the notice. This is a service which calls for volunteers of the highest grade and qualifications, and for the honor of the New England medical and nursing professions it is expected that there will be an abundance of well fitted volunteers.

MEDICAL NOTES.

AMERICAN PROCTOLOGIC SOCIETY.—The seventeenth annual meeting of the American Proctologic Society will be held at San Francisco, California, on June 21 and 22, 1915. The profession is invited to attend all meetings.

BUBONIC PLAGUE IN HAVANA.—Report from Washington, D. C., on May 11 states that two more cases of bubonic plague have been discovered in Havana, making a total of fourteen cases since the beginning of the outbreak six weeks ago. American and local officials are working in conjunction to eradicate the plague.

PREVALENCE OF MENINGITIS, MALARIA, PELLAGRA AND POLIOMYELITIS.—The weekly bulletin of the United States Public Health Service for May 7, 1915, states that during the month of March, 26 cases of cerebrospinal meningitis were reported in New York State. During the same month, in Mississippi there were reported 16 new cases of meningitis, 4596 of malaria, 621 of pellagra and 39 of poliomyelitis.

WASHINGTON UNIVERSITY MEDICAL SCHOOL.—At the recent dedicatory exercises of the new buildings of the Washington University Medical School, St. Louis, a number of honorary degrees were conferred. Among these the degree of Sc.D. was given to Drs. W. T. Porter and O. E. Folin of the Harvard Medical School and to Dr. Theodore Janeway. The degree of LL.D. was conferred, among others, on President Lowell, Dr. Simon Flexner and Dr. W. H. Welch.

SMALLPOX ABOARD THE CHARLESTON.—Report from Seattle, Wash., on May 16 states that the United States cruiser *Charleston* has been quarantined at that port on account of the discovery of two cases of smallpox among recruits aboard.

WATER FILTRATION PLANT AT ST. LOUIS.—On May 15 there was dedicated at St. Louis a new water filtration plant which has recently been completed at the extreme northern end of the city at a cost of \$1,300,000. The daily capacity of this plant is 150,000,000 gallons and, in cases of emergency, 200,000,000 gallons.

"The opening of the filtration plant is the last step deemed necessary for years to assure St. Louis of clear water. The city's water is taken from the muddy Mississippi River, and first is given a chemical treatment that precipitates the solids and foreign matter. The water then passes through a series of settling basins, from which it emerges clear. For years this system was sufficient to assure the city clear water, but as the demands for water grew with the growth of the city, it was noticed that in hot weather or when the river was unusually muddy, the water was drawn through the settling basins so fast that it poured out of the faucets slightly

discolored. The great sand filter then was built. The water now will pass from the settling basins into the filter, and thence into the mains. The filter, it is believed by engineers, will assure the people of St. Louis absolutely clear water."

CARE OF THE FEEBLE-MINDED.—The subject of the care of the feeble-minded was discussed on May 17 at one of the section meetings of the National Conference of Charities and Correction in session at Baltimore. Mr. Amos W. Butler, secretary of the Indiana State Board of Charities, presented a report of an investigation of the number and care of the feeble-minded throughout the United States.

"The most conservative estimate of the number of feeble-minded in this country is one in every 500 of the population. This means 200,000. About one-tenth of this number are receiving proper care. At least two-thirds of the feeble-minded have inherited their feeble-mindedness. The average number of children born in a family is four, whereas in the degenerate families we find 7.3 each. One study of the mentality of truants shows upwards of 80% of them feeble-minded. Many different studies show from 46% to 89% of reformatory inmates to be feeble-minded. If these statements should be taken at only half their value, they still show a condition important enough to need prompt action."

NEW YORK CITY'S HEALTH LAST WEEK.—There were 1472 deaths and a death-rate of 13.23 per one thousand of the population reported during the past week, as compared with 1533 deaths and a rate of 14.32 for the corresponding week in 1914,—a decrease in the absolute number of deaths of 61 and in the rate of 1.09 points, which is equivalent to a relative decrease of 121 deaths.

Scarlet fever, typhoid fever, organic heart diseases, pulmonary tuberculosis, and chronic Bright's disease, all showed a decreased mortality.

Those causes showing an increased mortality were measles, whooping cough, tuberculous diseases (other than pulmonary tuberculosis), diseases of the nervous system and violence.

Viewed from the point of age grouping, there was a considerable increase in the deaths of children under one year of age and of children between one and five years of age, which was more than offset by the decreased mortality at the age groups of 5 years and over.

The death-rate for the first twenty weeks of 1915 was 14.63 per one thousand, as compared with a rate of 15.35 during the corresponding period of 1914, a decrease of .72 of a point.

AN EDUCATIONAL LUNCH ROOM.—The Bureau of Public Health Education of the city of New York has opened an educational lunch room, in which carefully arranged luncheons are provided at low cost with the object of furnishing

wholesome food at cost price and of educating its patrons in food values and nutrition. Appearing on the menu is a statement of the number of calories and grams of protein each article contains.

TUBERCULOSIS IN THE FRENCH ARMY.—Professor L. Landouzy of Paris has published in the *Revue d'Hygiene* an article calling attention to the danger of rapid spread of tuberculosis in the French army, due to the massing of soldiers in restricted areas, such as trenches and during siege operations, where it is impossible to protect the well from such tuberculates as may be in their ranks. In a condition of peace it has been estimated that in eight years the number lost to the army was 36,000, so that the present army may lose not fewer than 30,000 a year from this cause. Dr. Landouzy makes the suggestion that known tuberculates be given posts and stations in the outlying districts apart from the segregations of soldiers in trenches and forts.

GORGAS PRIZE MEDAL.—Referring to the Gorgas prize medal, to be awarded yearly by the Association of the Medical Reserve Corps, U. S. Army, New York State Division, the board of award makes the following announcement:—

The competition is open to medical officers of the Army, officers of the Medical Reserve Corps of the Army, and medical officers of the Organized Militia.

The medal will be awarded for the paper submitted which shows the most important advance in medicine or surgery on a medical or medico-military subject, preference being given to papers on a medico-military subject.

The medal will be awarded only for papers of exceptional value.

The board of award consists of three members of the faculty of the Army Medical School, appointed by the Surgeon-General, U. S. Army.

The papers should be submitted to the Board of Award, Gorgas Prize Medal, by March 31 of each year, and should be addressed to the President of the Board of Award, Gorgas Prize Medal, Army Medical School, Washington, D. C.

The award will be announced at the graduation exercises of the Army Medical School, on May 31 of each year.

EUROPEAN WAR NOTES.—It is reported from Philadelphia that early in June another surgical unit will sail from that city for service in military hospitals of France and England. The leaders of this unit will be Dr. J. William White, Dr. R. Taite McKenzie and Dr. James P. Hutchinson. The unit will be stationed primarily at the American Ambulance Hospital at Paris, and, in addition to the above named, will consist of a number of physicians and nurses. Dr. Hutchinson will be the chief surgeon.

In the issue of the JOURNAL for May 6 we noted a proposition by Sir William Osler, of Oxford, that the Harvard Medical School should send abroad in June, for service in an English government field hospital, either in France or in England, a second surgical unit, to consist of twenty-four surgeons and seventy-five nurses, and to have charge of over one thousand beds. The unit is now in process of organization and will be under the leadership of Drs. Edward H. Nichols, Charles A. Porter and William E. Faulkner of Boston. It is probable that as many as thirty-two, instead of twenty-four, surgeons will compose this unit, which is to undertake a service of six months. In last week's issue of the JOURNAL was published the call for volunteers for the unit with full statement of the details of requirement.

On May 22 the totals of the principal American relief funds for the European War reached the following amounts:—

	N. Y.	N. E.
Belgian Fund.....	\$1,036,700.62	\$250,100.70
Red Cross	494,032.71	134,460.51
American Ambulance	388,743.00	
Polish Fund	77,699.35	45,988.24
Serbian Fund	64,670.77	30,266.25
Depage Memorial		624.00

BOSTON AND NEW ENGLAND.

NORFOLK DISTRICT MEDICAL SOCIETY.—At the 65th annual meeting of the Norfolk District Medical Society, held May 11, at the American House, Boston, the following officers were elected: President, Dr. Matthew Vassar Pierce of Milton, Harvard A.B., 1877, Harvard Medical School, 1880; vice-president, Dr. Thomas F. Greene of Roxbury, Tufts '94; secretary, Dr. Bradford Kent of Dorchester, Harvard '02; treasurer, Dr. George W. Kaan of Brookline, Harvard '90.

PASSAGE OF MEDICAL REGISTRATION BILL.—On May 12, by a vote of 120 to 77, the House of Representatives of the Massachusetts General Court passed to be engrossed the bill providing that no person shall be admitted to the practice of medicine in Massachusetts who is not a graduate of a duly chartered medical school with power to grant degrees.

MASSACHUSETTS PHYSICIAN SAILS FOR SERBIA.—On May 15, Dr. Stanley H. Osborn of Peabody, Mass., sailed from New York aboard the *Athenia* to serve at Nish and Belgrade under Dr. Richard P. Strong in the Rockefeller Commission for the eradication of typhus fever. He graduated from Tufts Medical School in 1914.

ELECTION OF DR. WALCOTT.—At the annual meeting of the American Academy of Arts and Sciences, held in Boston on May 14, Dr. Henry P. Walcott, Cambridge, Mass., was elected president for the ensuing year.

REPORT OF THE CHILDREN'S HOSPITAL.—The forty-sixth annual report of the Children's Hospital, for the year 1914, contains the following statistics: Number of patients treated 2585, daily average 104; new patients treated in the out-patient department, 6776; number of operations, surgical 652, orthopedic 444, throat 788; social service department new cases, 936. The new hospital was fully occupied by the month of June. During the months from September to December the number of patients treated in the wards increased 44% and the out-patient visits increased 36% in comparison with the same months of the previous year, demonstrating the greater facility of the new hospital in treating cases with its added equipment and increased capacity. Legacies and endowments received during 1914 amounted to \$64,014.40.

REPORT OF THE INFANTS' HOSPITAL.—The recently published report of the Infants' Hospital contains a record of its service from March 3, 1914, when the new Thomas Morgan Rotch memorial building was opened, to Jan. 1, 1915. During that time 303 babies have been received in the wards. The charitable work of the hospital,—caring for the sick babies of the poor,—is badly handicapped for lack of income. During the summer months the hospital was compelled to refuse admission to two sick babies every day, and the number has increased to three. As a means of increasing the income of the hospital various rearrangements were made to increase the accommodation for paying patients, and over \$2500 was netted in this manner. There is a class of nursery maids carried on at the hospital, which provides a six months' course of training. The wet-nurse directory, formerly under the auspices of the Massachusetts Babies' Hospital, has been taken over by the Infants' Hospital. Forty-nine wet-nurses were admitted and forty-two were placed in families. That the work of the hospital should be restricted because of lack of funds, in a city where hospital provision for infants is limited, is deplorable, and it is earnestly to be hoped that adequate support may be forthcoming during the present year.

MILK AND BABY HYGIENE ASSOCIATION.—At the latest meeting of the board of trustees of the Milk and Baby Hygiene Association the following officers were elected: chairman, Charles E. Mason; secretary, Benjamin Loring Young; treasurer, F. Abbot Goodhue. George R. Bedinger, director, reported that during the first four months of 1915 the association cared for 2516 babies.

A SECOND EPIDEMIC OF TONSILLITIS IN DORCHESTER.—In the issue of the JOURNAL for May 6 we commented editorially on an epidemic of streptococcus sore throat then prevalent in the Dorchester district of Boston. There is at present a second similar, but smaller, epidemic in the same district, comprising about one hundred and fifty cases. It is believed by the board of health that the source of infection in these cases has been traced to two dealers dispensing unpasteurized milk obtained from dairies in Canton, Milton, Randolph and Stoughton, Mass. Pasteurization of this milk supply has now been ordered. It will be instructive to observe whether this procedure is followed by a cessation of the epidemic. The source of infection in the previous epidemic has not yet been authoritatively determined.

INDUSTRIAL THERAPY IN STATE INSANE INSTITUTIONS.—At the meeting of the American Medico-Psychological Association in Virginia from May 11 to 14, was shown a representative exhibit of the work of the state institutions under the control of the Massachusetts State Board of Insanity. This exhibit included a series of 353 articles,—brushes, brooms, boots, rugs, and examples of string work, basketry, embroidery, leather work, metal work, pottery and weaving. All these articles were made by inmates of the Massachusetts State Insane Hospitals and illustrate the methods of industrial therapy there employed. The recent bulletin (No. 9) of the Massachusetts State Board of Insanity for May, 1915, describes the further progress in application of this method. At the Westborough State Hospital the industrial workroom has been transferred from the basement, where the work was done before, to a large, airy and sunny room on the third floor. At the Grafton State Hospital the weaving of overall cloth has been added to the other industries.

FATAL POISONING BY AMERICAN WATER HEMLOCK.—The recently published monthly bulletin of the Massachusetts State Department of Health for February, 1915, contains a report of a case of fatal poisoning by the root of the American water hemlock, eaten by a farm laborer while at work in Milford, Mass. The poisoning was symptomatized by nausea, vomiting, vertigo, widely dilated pupils, convulsions, unconsciousness, coma and death in one hour after ingestion, the amount eaten being about an ounce. On investigation the plant proved to be the American water hemlock (*cicuta maculata*), commonly known as spotted cowbane or beaver poison.

"It is one of the commonest of our meadow and swale plants, and variously referred to as water hemlock, wild hemlock, cowbane, beaver poison, musquash root and muskrat weed. In several instances children have been fatally poisoned by eating its roots, which have been termed 'children's bane.' The plant is often erroneously referred to as 'wild parsnip.' It is closely

allied to the less common and somewhat less virulent poison hemlock (*Conium maculatum*) with which Socrates was put to death. A related plant, *Sium cicutaefolium*, which grows with *Cicuta* or in similar habitats, has similar roots which were eaten by the Indians. In the winter and spring, when the roots are well filled, the Indians distinguished the two plants by the old stalks. The stems of *Cicuta*, the poisonous plant, are cylindric and quill-like, those of *Sium* strongly corrugated or furrowed.

The roots of the American water hemlock consist of several oblong, fleshy tubers, spreading out from the base of the stem. They are among the first green substances to appear in the spring, and are eaten chiefly by herbivorous animals. They are mistaken by human beings for parsnips, because of their odor and texture, artichokes, sweet cicely, horse-radish, or other edible roots."

In the year book of the United States Department of Agriculture for 1896 is reported another similar case of poisoning by the American water hemlock.

NEW HAMPSHIRE STATE MEDICAL SOCIETY.—The 124th annual meeting of the New Hampshire Medical Society was held in Memorial Hall, Concord, N. H., on Wednesday, May 19. The first meeting of the house of delegates was held the previous evening at the Eagle Hotel. The general sessions on Wednesday were opened at 10 a.m., with an address by the president, Dr. Herbert K. Faulkner of Keene. At 11 a.m. the simultaneous sessions of the sections on medicine and surgery were opened and a number of interesting papers were presented by members of the society. Another general session was held at 2 p.m., at which there were addresses by Dr. Allan J. McLaughlin, Massachusetts State Commissioner of Health, on "Preventive Medicine," and by Dr. John B. Blake of Boston on "Surgery of the Spleen." The oration in medicine was delivered by Dr. Alexander Lambert of New York on "The Equilibrium of the Circulation" and the oration in surgery, by Dr. William S. Bainbridge of New York on "Chronic Intestinal Stasis." Between the morning and afternoon sessions the women members and the wives of visiting members were entertained at luncheon at the Memorial Hospital by the hospital trustees. The annual banquet was held at the Eagle Hotel at 7 p.m., preceded by an informal reception. The usual exhibition of books, surgical appliances, drugs and foods was held during the meeting in the basement of Memorial Hall. On the date of the meeting the New Hampshire Historical Library, the Friendly Club, the Woman's Hospital, the Margaret Pillsbury Hospital, and the New Hampshire State Hospital were opened for inspection and rest.

Massachusetts Medical Society.

SOCIAL SERVICE INSTITUTES.—Following the joint meeting of committees from the Massachusetts Medical Society and the Massachusetts Federation of Churches, recently reported in the JOURNAL, there have been three social service institutes arranged by the Federation of Churches, at each of which a physician has been given a prominent part in the program. The first was at Springfield on March 10, the second at Middleboro on April 14, and the third at Littleton on April 26.

In each meeting the stress of the address has been upon the need of a trained health officer in each city and town.

Miscellany.

VETO OF THE CLEAN MILK BILL.

THE following represents in part the text of Governor Walsh's message to the State Senate on May 20 conveying his veto of the so-called Labor Clean Milk Bill, which is commented upon editorially in another column of this issue of the JOURNAL:—

"Although from its title the bill appears to be mainly aimed at the distributors of dairy products, a study of its provisions will show that its heaviest penalties are reserved for the producer, who, in addition to the fine and imprisonment to which dealers are made liable, is exposed to the risk of being obliged to choose, on a very few days' notice, between undertaking a possibly heavy expense in order to conform his buildings to an undetermined sanitary standard discretionary with either the State Board of Health or a local board, or as an alternative accepting his sentence and abandoning his business.

"Such being the case, it is necessary to consider whether a measure so drastic is really needed for the protection of the public health, and whether, on the other hand, it might not reasonably be expected to aggravate the very evil which its advocates aim to remove.

"I yield to no one in my anxiety to secure for the children of our state a pure and abundant supply of milk at a reasonable price. This object, however, I am thoroughly convinced, cannot be obtained by further penal legislation, but only by encouraging and developing the production of nearby milk through constructive legislation, such as I hoped would be worked out and submitted to the Legislature by the special commission for which I asked earlier in the session.

"My specific objections to the present bill are these:—

"First: That the State Board of Agriculture and the Dairy Bureau, the authorized representatives of the agricultural interests, are opposed to its enactment.

"Second: The State Department of Health has not initiated any legislation on the subject, and should be given time and opportunity to study the question before further legislation is adopted.

"Third. As the bill carries no appropriation and provides no new facilities for inspection, but merely exposes producers and dealers to new and ill-defined perils, it tends to terrorize the farmers and milk-producers of the state, without adding any protection to the consumer, and can have no other effect in my judgment than to drive many self-respecting dairy men out of business and materially increase the price of milk.

"Fourth: It is a well-established fact of bacteriology that disease germs multiply at almost incredible rates in milk and cream at ordinary temperatures when once introduced in them, and that it is therefore of the utmost importance from a sanitary standpoint that milk should reach the consumer in as few hours as possible after its production. This bill discourages the production of nearby milk, tends to increase the average of milk consumed, and thereby increases rather than lessens the danger to the public health.

"Fifth: The bill discriminates against Massachusetts producers, since if convicted, a Massachusetts man becomes a criminal, while the out-of-state man escapes with the exclusion of his product from the state, a matter already fully provided for in Chapter 755 of the Acts of 1914.

"Sixth: I find experts of the highest standing agreed that dairy inspection alone fails to provide any adequate protection against the spread of disease in milk, while laboratory tests of the product itself have proved of great value. This bill in my judgment will not improve the quality of our milk supply one iota, since it deals only with the conditions of production, without any attention to the actual quality of the product.

"Seventh: The farmers of the commonwealth are as honorable and law-abiding a class of citizens as any other, and this legislation is certain to penalize and humiliate them in a way that they have not deserved. The milk produced by our farmers is as clean and wholesome as that produced in any other part of the country, and they should not be compelled to submit to inspection and regulation that are unnecessary and that do not take into account the quality of the milk product itself.

"Eighth: There is already an ample amount of penal and regulative law upon this subject. The Bureau of Animal Industry is empowered and directed to see to it that milch cows are free from disease and stabled under sanitary condi-

tions. I have yet to learn that any local board has failed to do its duty under the present laws.

"As a whole, this bill affords an apt illustration of the difficulties that are likely to result when private individuals or organizations, however zealous and well-meaning, attempt to shape legislation in the public interest without the aid and guidance of the state departments created and maintained for the express purpose of protecting these very interests.

"It is argued that the danger of unjust prosecutions under the pending bill is obviated by the provision giving immunity unless the person complained of has first been warned against committing the offence; but as the bill is worded it seems that the warning need only be a general one not to deal in 'any such milk,' and that a person who has once received such a general warning would be fully liable to punishment if any milk subsequently found in his possession could be proven by its bacterial content or on direct evidence to have been produced or handled under improper conditions, even though he neither had, nor from the nature of the case could have, any knowledge or warning of the existence of such conditions affecting that particular milk.

"We have a state department of health, headed by a physician of world-wide reputation in this very field of the prevention of communicable diseases, aided by an expert of nationwide reputation on communicable diseases, and an advisory council whose fidelity and ability are unquestionable. If this board, after a careful study of the entire situation, shall consider additional legislation advisable, it will doubtless recommend a thoroughly digested measure to the next Legislature, free, it is to be hoped, from the glaring faults of the pending measure and several of its predecessors.

"Clean milk for the babies and invalids is a great necessity, but legislation hostile to the dairy industry, without obtaining clean milk, may prevent thousands of babies in the Commonwealth from receiving any milk at all because the price may become prohibitive to our poor people.

"The decline in this industry has been constant and alarming, the number of milch cows is yearly decreasing, and I am convinced that it is in a large part due to the fact that constant legislative agitation has alarmed our farmers and made the business for the producer and small dealer not only unprofitable but almost discouraging.

"What we need in Massachusetts is not more inspection or penalizing, but laws tending to educate and encourage the dairy industry in order that we may have not only clean milk but an abundance of it at reasonable prices."

"I feel certain that many of the communications and endorsements that have come to you and to me in favor of this legislation have been influenced by the very name with which the bill

has been labelled in the popular mind, namely, 'The Labor Clean Milk Bill.' By using the words 'labor' and 'clean milk' a sentiment can be aroused in any community in favor of proposed legislation.

"I am thoroughly convinced that the measure is without merit and involves a very serious injustice to a large element of the community engaged in an honorable and legitimate occupation. No results will follow its enactment to improve the condition of milk in this commonwealth, but on the contrary any such legislation is certain to injure the dairy industry materially and lead to increased cost in the price of milk."



AMERICAN ACADEMY OF MEDICINE.

THE fortieth annual meeting of the American Academy of Medicine will be held at San Francisco on June 25 to 28, in conjunction with the meetings of the Pan-American Medical Congress and the American Medical Association. The presidential address will be delivered by Dr. Woods Hutchinson, and the annual address on "The Relation of Medicine to the Peace Movement," by Dr. David Starr Jordan. There will also be addresses by Dr. Rupert Blue on "The Prevention of Oriental Diseases in the Ports of America"; by Dr. Victor G. Heiser on "Hookworm Disease and Its Relationship to Immigration and Commerce in the Philippines"; by Dr. W. C. Rucker on "The Transmission of Typhoid on Trains and Steamboats"; by Dr. W. A. Sawyer, of Berkeley, Calif., on "The Disease Carrier on Train and Steamboat"; and by Dr. Richard P. Strong of Boston on "The Need of Medical Conquest for the Establishment of Commerce."

At its previous annual meeting, on June 22, 1914, the Academy, which was founded as a society for the study of questions of social medicine, adopted the following report of its committee on policy with reference to its future.

"The American Academy of Medicine has specialized in medical sociology for the last eight years. The work done has been of the greatest importance. The publications of the academy have won a high place and are in constant demand. The revised constitution and by-laws make it possible for us so to extend our membership as to include as fellows all physicians who are interested in this phase of medicine and, in associate membership, all workers in the field of sociology who recognize that scientific medicine is fundamental to all inquiries and investigations of abnormal social conditions, and that the cooperation of the physician is essential for the successful administration of measures for the correction of conditions which interfere with human efficiency.

"We believe that the field of sociologic medicine is so large that it can only be satisfactorily

covered by a national society of the broadest scope and with the widest conception of the nature of the work before it. We believe that the American Academy of Medicine is the legitimate one to expand into such an organization.

"Therefore your committee recommends that the American Academy of Medicine continue in the field of medical sociology. . .

"Your committee further recommends that the academy take up, together with as many other organizations as can be interested, at least the following phases of medical sociology.

- "1. The child and its relationship to society.
- "2. The medical aspects of education.
- "3. The social inefficient.
- "4. Legislation and medicine.
- "5. Medicine in its relationships to industry, trade and commerce.
- "6. Civilization in its effects on morbidity and mortality."



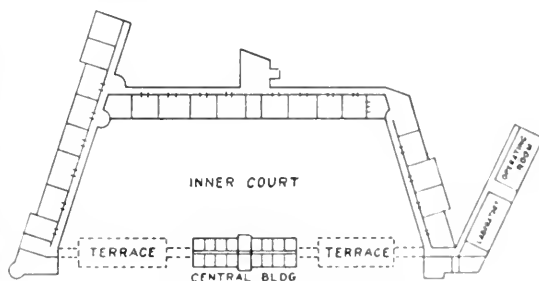
Correspondence.

THE HARVARD UNIT AT THE AMERICAN AMBULANCE IN NEUILLY, PARIS.

PARIS, April 8, 1915.

Dear Mr. Editor: We have been here two weeks and you may be glad to have a few words of our early impressions.

Photographs of the Lycée Pasteur you have seen, but it is a surprisingly large place, and none of those that were circulating at home serve to give an idea of its extent. A better idea may be given by the bird's-eye view which I enclose, taken from a tall apartment across the way on the Boulevard Inkermann. Since Crile's sojourn here the entire third floor is given over to the University Units, and in order that you may have some conception of the space at our disposal, this sketch of the floor plan may help you—for, though admirably adapted for its present purposes, it is a most labyrinthine place, and owing to the wings, one's orientation is readily confused, even after a week's occupancy. This is particularly



Lycée Pasteur, Third Floor Plan.

so because the corridors on the two sides adjoin the court and that on the long side is away from it.

We have supervision of the 18 small wards on this floor with a capacity of 162 beds. Our operating room and laboratory, both of ample size and well lighted, are *au troisième* in the adjoining wing above the chapel, where, I may add, you are Catholic if you face one way and Protestant if you face the other. A very readable book, in the form of a diary, from

Aug. 3 to Dec. 31, *La Guerre vue d'une Ambulance*, has been written by the Aumônier, l'Abbé Félix Kleim.

The present capacity of the hospital is about 500, divided into four services, under Dr. duBouchet, who is surgeon-in-chief and is responsible to the military authorities—for the hospital, as you know, is under a military and not a Red Cross organization—Dr. Blake, Dr. Mignot and ourselves. There are at present some 450 wounded, mostly from the French forces, including those from Africa. There remain a few "Tommies," relics of the battle of the Marne days when this Ambulance was almost a first-line hospital, but there are no longer any wounded Germans, they being sent to special hospitals—to Val de Grace, I believe, and elsewhere; for they require a military guard, and there are uncomfortable stories regarding Turcos and Germans kept under the same roof.

We did not quite overlap our predecessors, for they sailed on the first and, therefore, had to leave two or three days before our arrival. But the wards had been purposely somewhat emptied for us so that we started in with only about 100 *blessés*. Naturally our first visit among them was of extraordinary interest to us on a personal as well as a professional side. Every individual story was so appealing and fascinating as to make it difficult at first to concentrate one's attention on the lesion and the actual condition of the moment—in what engagement the man was injured,



Lycée Pasteur, Neuilly, Paris. Ambulance Américaine.

what he was doing at the moment, with what sort of a missile he was hit, where he got his first aid, through what hospitals and what hands he had gone on his way here from the time he was tagged with a pink or a white ticket at the *Poste de première secours*, how long since he had had his clothes off, since he'd had a bath and so on.

Though there are many exceptions, I should say that the cases fall into three regional groups,—wounds of the upper and of the lower extremities, and of the jaws. There are a number of cranial injuries, some of them of great interest, a ward full of hopeless spinal paraplegias—a sad place—many chest cases also; but the majority of the wounded in a hospital this far from the line at present will fall into the three groups mentioned. We are a little too late to see the frost-bitten or "water-bitten" feet which a few months ago must have been overwhelmingly numerous, for there are still a number of them not yet entirely recovered which are holding over; all sorts of tender feet with acroparaesthesias and erythromelalgia-like phenomena which would make an interesting study in themselves. A man with deformed toes, due to wearing *sabots* in childhood, as is the case with one of our patients, wearing none too well fitting army shoes, tight puttees in addition, with some resultant venous stasis, standing for hours or days in cold water or mud in the trenches and without having his shoes off for weeks perhaps—well you can imagine the result. Good feet to get about on and good teeth to crunch crusts of bread are two of the essentials to efficiency. Without these a soldier doesn't

get back at all, whereas a few *balles de fusil* can go through him and he's in the line again after a few days.

Even among the wounded in our wards one sees every kind of a fracture in every situation from all sorts of missiles—or from none at all, for men may be injured in this dangerous trade of warfare in many ways: as by the falling in of arborescent trenches when blown up by a shell, without being actually hit themselves. One of our patients, for example, has some broken ribs from the kick of a horse; another a broken jaw from the butt end of a musket, but the majority have "amassed souvenirs in the shape of lead and spears,"—you remember Kipling's "Father Bobs" I am sure,—shrapnel, pieces of *obus*, often of amazing size, pointed German jacketed bullets—sometimes even the solid brass French bullets—and all other conceivable things. A routine x-ray examination is of course necessary and the Roentgenological department, like all other departments here for that matter, is admirable, being under the direction of an expert, Dr. Jaugeas, who, from the first, has given almost his entire time to the work—and this is the rule, not the exception. Cutler sent one of our cases to him the other day, needlessly I thought, for the man had a little wound over the mastoid which had nearly healed and there were no especial symptoms. The x-ray disclosed an unsuspected shrapnel ball in the cerebellum. His record stated that he had been hit by a small fragment of shell which had been removed at the *Ambulance de première ligne*.

There are naturally all sorts of bizarre wounds. Thus, one of the men, with a wound through the face, jaw and neck, where the bullet emerged after dividing the cervical sympathetic, received from the same projectile, as was supposed, a compound fracture of the acromion where the x-ray showed what was thought to be the jacket of the bullet; but it proved to be the deformed metal button of his shoulder strap which had been set in flight by the original ball after it had traversed his head. Stories of these bizarre effects might be multiplied without end.

The explosive fractures of the long bones are, of course, in many cases dreadful, and those from shrapnel, and fragments of *obus* inevitably infected, but I fear that your correspondent who signs himself "S." has greatly exaggerated the helplessness of the surgeon in these cases. The mortality is really very low and the amputations relatively infrequent even when there is gas infection. The story is of course different when there is actual *gangrène gazeuse*, which apparently is an accompaniment of great tissue destruction with associated circulatory disturbances from thrombosed and damaged vessels. But, at the best, the healing of these bad fractures is a long tedious affair with the almost inevitable osteomyelitis and necessary wait for separation of fragments. Then too, almost every case has some associated paralysis. This is particularly true of the upper arm fractures in which a musculo-spinal paralysis almost always occurs, even when the nerve has not been touched, and indeed actual divisions of the nerves are comparatively rare. I estimated during our first few days that nearly 50% of our wounded had a concomitant neurological lesion of more or less major type. Then, too, for Osgood in particular, among the members of our Unit, there are problems of absorbing interest, for almost every patient has some joint trouble from long fixation, or some deformity which is capable of alleviation in his skilful hands, and he has been very busy in consequence.

It is a great regret that we did not succeed in bringing a dental surgeon with us, for of all the opportunities of an unusual sort which the hospital presents, this is, I think, the greatest. Under the direction of Dr. Hayes the dental department at this Ambulance has struck out into entirely new fields and has done such admirable work that the authorities send here a great many of the bad fractures of the upper or lower maxillae. There must be at least 50

of them now under treatment, from poor creatures with their entire lower jaw blown away to fairly simple fractures with the teeth out of alignment. Dr. Hayes has indefatigably given practically his entire time since August to this work and had a number of men associated with him and needs more. It is a form of major surgical work assumed by the dentist which places him on a level with the surgical specialist in any other line, and the work cannot be too highly praised. The U. S. Government should make every effort to send over our army surgeons to receive instructions in this work if in no other, for it is important and new.

The effectiveness of our contingent has been greatly crippled by the loss of Strong who, though here for 10 days and giving us as much of his time as possible meanwhile, was nevertheless occupied intensely on matters relative to the preparation of his expedition to Serbia. We had planned to make some special studies of the gas infections, a problem the importance of which we did not fully realize before leaving home and which Rogers and Benet will attempt to carry out on the lines Strong has laid down. The opportunity is exceptional, for no one seems as yet to have even culturally differentiated the various strains with which these wounds are infected. They are all grouped as *B. perfringens* rather than as varieties of the *B. aerogenes capsulatus* as Americans would like to see them.

The expedition of which Strong will doubtless be given the leadership has assumed proportions of an international scope and I may say that nothing but praise of him is heard on all sides—not alone for the sacrifice he is making but for the evident capacity of leadership and quick grasp of situations which he has shown. The Sunday before he left I had the good fortune to go with him in a military motor up to Amiens and from there along back of the line in several places on a *laissez-passer* of broad scope from the war office, which gave us an exceptional chance to see the various grades of hospitals and the system of transportation of wounded from those at the first line back to the base. They are at present getting typhoid well under control through compulsory vaccination, which was not adopted till the end of the year. One of the physicians estimated that there had been 70,000 in the French army in the last months of 1914. There were about 4000 at the large hospital at Amiens alone.

In these front line hospitals, too, one sees the severe cases—cranial, spinal, and abdominal which cannot be evacuated to the more remote hospital centres. The mortality of the severely wounded is, of course, high, whereas at the Ambulance at Neuilly, where less severely wounded cases are now received, there have been, I believe, only 81 fatalities, most of them occurring in the early months during the fighting along the Marne close at hand. Our first admission on April 1st was a man with *obus* injury of the occiput, causing hemianopsia, his number being 1387, which would make a percentage mortality of 17 for the entire series—high enough surely. With the present run of cases it would, of course, be very much lower.

I think our men have all done very well and I am sure the expedition will prove a credit to our hospitals and the University, and it is possible that we may be able to secure valuable material for the Warren museum, already rich in pathological material from former wars. Whatever misgivings we may have had before leaving of the wisdom of our coming, vanished the day of our arrival; and I think the Ambulance officials are appreciative of our desire to make our work as effective as possible. Greenough has managed our affairs with great executive ability and by common consent has been made our visiting chief. Five of the men, Cutler, Collier, Barton, Wilson, and Petersen, are "living in" at Neuilly, and the rest of us are comfortably housed in Paris not far away.

One of the French surgeons who was looking on at an operation the other day in which Boothby was

giving the anesthetic intranasally with the Connell apparatus, said to me "We know nothing about giving anesthetics in France." It is a satisfaction to feel that we may be helping in this respect and indeed our operating room, owing to the installation of this apparatus, has already become a centre for operations on the head and face. Crile also helped the Ambulance greatly in this respect and his anesthetist, Miss Hodgins, is still here giving instruction in gas-oxygen administration.

Well, Mr. Editor, I have scrambled through this letter, which I shall hardly venture to reread, with much that I would like to say still unsaid. In this place, unquestionably the best of the four or five hundred auxiliary hospitals established in Paris, there is a most amazing aggregation of talent, and to follow a poor wounded devil in his dirty uniform, brought in in a Ford ambulance by an upstanding young ambulance driver—a college graduate likely enough—from some distributing point, to see him recorded by the indefatigable Mr. Kollman, then stripped and given a bath, well lathered in a tub by one James Jackson, formerly engaged in some mercantile pursuit and jokingly dubbed K.C.B., then taken to his bed, where he quickly falls into an exhausted sleep, by orderlies who may be young architects or artists or sons of aristocratic families, shaved and clipped by a barber who accepts no fee, cared for in countless ways subsequently by attractive, skilled and effective attendants, men and women of all walks, but serving with whole-souled devotion—it all is a most creditable thing for American enthusiasm and prompt action to have put through: and its accomplishments and effectiveness will justify all the support it has so generously received and will continue to receive from home.

And of the French wounded themselves too much cannot be said in praise. They are as a whole the most uncomplaining, courageous and appealing lot of men that can be imagined and well deserve all that anyone can do for them.

Sincerely yours,

HARVEY CUSHING.

POTASSIUM PERMANGANATE: ITS COOLING EFFECT UPON THE SKIN.

Boston, May 12, 1915.

Mr. Editor: Summer is coming, and with it is sure to come a certain amount of hot, sticky weather. This sticky, high humidity heat affects the human in one of two ways, according to whether he or she is a thin carnivore or a fat herbivore. The carnivore who perspires little or not at all suffers from headaches and prostration, while the herbivore sits placidly amid streams and puddles of perspiration, his worst suffering perhaps being due to chagrin at the rapid ruination of erstwhile immaculate collars and cuffs. Gregg has recently remarked upon this type difference to humid heat, as observed during a residence in the Philippines. To put the two types upon something like an equality of discomfort, the carnivore must be induced to perspire, a phenomenon perhaps most easily accomplished by the use of judicious amounts of alcohol: by judicious amounts is meant not more than a sherry glass of claret, madeira, or other similar beverage, taken at the oftenest not more than once in every four hours and perhaps best only with or after meals or three times daily during the excessively hot weather. Having thus induced perspiration and relieved the headache of the carnivore by internal medication, the question arises, can anything further be done to promote comfort in the dog-days? This question assumes that the usual methods have been exhausted.

The answer is a decided yes. If, under the conditions above stated, one wishes to experience in the hottest and wettest weather available, a sensation as of a drop in temperature of say ten degrees with cor-

responding relief from the effects of humidity, it is necessary only to take a bath in or rub down with a weak solution of potassium permanganate. This may be followed by a shower or wash with plain water. The result will justify the effort of the procedure, and it is especially valuable as a means of promoting sleep at night.

This proposition very likely is known to many, but it is at least in this case the accidental discovery of the author and seems not to be known to any of his medical friends unless through personal conversation on the subject. For this reason, and with a marked increase in comfort so easily obtainable, it has seemed worth while to present this simple expedient in the hope that a few persons and particularly invalids may thereby receive the benefit from its application.

Arriving one day on an errand of medical necessity at Batavia, some years ago in the midst of the Javanese summer, the writer found the climate both hot and wet as was to be expected. One of the provisions for the entertainment of the tourist was, and doubtless still is, endemic cholera. This necessitated certain precautions. For instance, sulpho-naphthol was used rather freely upon floors, and fruit for the hotel table was always exposed to live steam. Also, the bath water always contained enough permanganate to give it a good reddish-brown tint. According to the custom of the country, a splash bath is taken: one stands upon a wooden grating and with the aid of a dipper throws over one's shoulders from a large tub at the side which is refilled daily. Permanganate is used in order to dampen the ardor of what germs may be present in this tub of water. All this is perfectly proper. The surprising feature of the use of this solution was its immediate cooling effect, lasting for some hours. At first it was dubious if the permanganate was really the active agent in producing the sensation of the drop in temperature, but repeated use of the solution for bathing purposes left no room for doubt, and recurring summer heat, both in this country and in Europe, has only provided opportunity for confirming the experiment and proving that permanganate has a very active value as a cooling agent.

The fact has been sufficient, but doubtless the mode of action is at least in part by the removal of all grease from the skin with better opportunity for loss of heat from the body. To try the experiment is to be convinced. It is only necessary to buy a few crystals of permanganate and make a saturated solution. Pour enough of this solution into a wash bowl to give the water a pale pink or reddish tint, rub down with a wash cloth, and follow with a shower or bath as desired. A solution strong enough to be effective can be used without discoloring the receptacle, or if necessary any stain is easily removed by the use of a little oxalic acid solution.

Potassium permanganate in weak solution is a valuable wash for external application in hot humid weather. Its use in conjunction with the customary bath greatly promotes comfort by day and sleep by night at a time when both comfort and sleep are at a premium.

Very truly yours,

JOHN BRYANT, M.D.

CORSETS, PTOSIS, AND SACRO-ILIAC STRAIN.

78 MARLBOROUGH STREET, BOSTON.

May 13, 1915.

Mr. Editor: I have just read with much interest the communication from Dr. Eben W. Fiske in your issue of this date in regard to my recent article in the JOURNAL on corsets, ptosis, and sacro-iliac strain, and cordially appreciate the courtesy of his criticism and his temperate statement of the position which he takes. I would not for a moment presume to dispute or differ with the opinion of Dr. Fiske, or of any other orthopedic expert, on the mechanics of the

production of postural defects or of the modes of their correction. My paper was intended merely to present my personal experience and observation in dealing with such cases, especially in women in a gynecological clinic.

In your editorial note to Dr. Fiske's letter you called attention to one point in my paper which, through incomplete quotation, may have been misapprehended. My classification of corsets into those that lace in front and those that lace *only* behind, was not intended to condemn corsets, of which there are several styles, which lace both front and back. Many patients prefer a corset with a laced back to one with a solid back on account of its being cooler; and I find no objection to such a corset provided it laces also in front. It is my belief, however, that only the front laces, and never the back laces, should be used, at least by the patient, for adjustment of the corset after it has been put on. From my experience I am not disposed to believe it possible for a patient, in any posture, to adjust her own corset as effectively with a back lace as with a front lace, though I would not for a moment deny that this may be done by an expert surgeon.

Neither can I bring myself to believe, in spite of Dr. Fiske's exposition, that it is possible to correct ptosis as effectively with any corset applied in the standing posture, as in the recumbent posture. The flesh of the abdominal wall may be lifted by the former method, but it is not this sagging flesh which constitutes the ptosis. Prolapsed abdominal viscera cannot thus be raised. For their replacement it is essential that gravity, by elevation of the hips in a recumbent posture, should first be employed to transfer the sliding viscera upward towards the diaphragm. The corset, properly applied in this posture, then splints the abdominal wall, so that the viscera cannot again prolapse when the patient stands up. At the same time, I believe such an application of a good corset, by splinting the pelvis, relieves the pain of sacro-iliac strain and, if combined with proper shoeing, tends to correct the postural defect, which has contributed to the production and establishment of the ptosis.

As I have said, my original paper was intended merely to present personal gynecologic experience and observation, not to lay down categorical or universal rules of procedure. It is obvious that conditions differ widely in different classes of patients and, as Dr. Fiske has felicitously pointed out, that different surgeons obtain equally good results by diverse methods. I am exceedingly grateful to Dr. Fiske for his valuable contribution to the discussion of this question and shall feel more than satisfied if my imperfect presentation of the subject may lead to a wider interest in and recognition of the importance of conditions of ptosis and postural defect as complicating or simulating other pathologic complexes.

Very truly yours,

ROBERT M. GREEN, M.D.

THE CHANGSHA YALE HOSPITAL.

CHANGSHA, CHINA, April 6, 1915.

Mr. Editor: May I ask the favor of your courtesy to state something of the situation in medical education in China. The Medical Commission of the Rockefeller Foundation has recommended support by the Foundation of four centers for medical education in China. One of these four is the Hunan-Yale Medical College and Hospital at Changsha, the capital of Hunan Province. This institution represents a joint agreement between Yale-in-China and a society of Chinese representing the Hunan government, for the development of a first-class school of medicine, nursing schools for men and women respectively, a modern teaching hospital, and a diagnostic and research

center for central China. The hospital, medical preparatory school, and nurses' schools are now in operation. The standards are the highest possible. The aim is quality and not quantity of work.

The support of the Rockefeller Foundation and the rapid growth in Changsha make a large increase in the medical and nursing staff necessary within the next two years. Both laboratory and clinical branches require trained men. Dr. Hume, the head of the Yale-in-China medical staff, will be in the United States until August 1, and will welcome inquiry from qualified applicants, or from men now graduating in medicine or in hospital positions, who wish to investigate these great opportunities in the Orient. Address, Dr. E. H. Hume, 5 White Hall, Yale University, New Haven, Conn. The scope of the Human-Yale institution is not limited to Yale men by any means.

Very truly yours,

ALFRED C. REED, M.D.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING MAY 15, 1915.

CONTRIBUTIONS.

Dr. Franklin B. Miller, Pittsburg, Pa.....	\$ 25.00
Dr. N. S. Jarvis, Captain U.S.A., New York..	15.00
Dr. Charles G. R. Jennings, Elmira, N. Y.....	25.00
Dr. H. E. Jenkins, P. A. Surgeon, U.S.N., Port Royal, S. C.	5.00
Dr. Luther G. Paul, Boston, Mass.....	5.00
Dr. M. C. Smith, Lynn, Mass.....	5.00
Arkansas Medical Society, Little Rock, Ark....	50.00
Dr. Charles Henderson Miller, Chicago, Ill....	10.00

Receipts for the week ending May 15.....	\$ 140.00
Previously reported receipts.....	6720.50

Total receipts.....	\$6860.50
Previously reported disbursements:	
1625 standard boxes of food @ \$2.20..	\$3575.00
1309 standard boxes of food @ \$2.30..	3010.70

Total disbursements.....\$6585.70

Balance\$ 274.80

F. F. SIMPSON, M.D., *Treasurer*,
7048 Jenkins Arcade Bldg.,
Pittsburg, Pa.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE THREE WEEKS ENDING MAY 15, 1915.

April 24, Asst. Surgeon A. E. Man, M.R.C., detached, Naval Medical School, Washington, D. C.

April 26, P. A. Surgeon E. U. Reed, detached, Marine Recruiting Station, Detroit, Michigan, to *Maine*.

April 27, P. A. Surgeon T. G. Foster, detached, Naval Disciplinary, Barracks, Port Royal, S. C., to *Chester*.

Asst. Surgeon J. T. Boone, detached, Naval Medical School, Washington, D. C., temporary duty, Naval Training Station, Norfolk, Va.

April 23, Surgeon J. D. Manchester, to Naval Hospital, Portsmouth, N. H.

April 30, Surgeon J. M. Brister, detached, *Kearsarge* to *Alabama*.

Asst. Surg. M. H. Sicard, M.R.C., commissioned April 12, 1915.

May 1, Surgeon J. R. Dykes, placed on retired list of officers of the Navy, from April 27, 1915, to home.

May 5, Asst. Surgeon W. A. Stoops, M.R.C., detached, Naval Hospital, New York, to temporary duty, Naval Hospital, Newport, R. I.

May 8, Medical Director, C. H. T. Lowndes, commissioned from April 18.

P. A. Surgeon T. G. Foster, detached, *Chester*, to Atlantic Reserve Fleet.

P. A. Surgeon H. L. Brown, detached, *Alabama* to *Chester*.

May 11, Surgeon C. E. Ryder, to Naval Training Station, Great Lakes.

Surgeon R. R. Richardson, detached, Great Lakes Training Station, Naval Hospital, Las Animas, Col.

P. A. Surgeon D. C. Walton, detached, Academy, June 7, 1915, to *Ohio*.

Asst. Surgeon S. D. Hart, detached, Naval Hospital, Las Animas, Col., to wait orders at Washington, D. C.

NOTICES.

DOCTORS FOR DUTY IN A BRITISH BASE HOSPITAL.

Harvard, Columbia and Johns Hopkins Universities propose to provide a surgical unit to take charge of a base hospital for British wounded, and for that purpose there is desired a staff of thirty-two surgeons; sixteen of these will preferably be well trained fourth-year graduates or house-officers having just completed a surgical service. The expedition will start between June 5 and 15. The Harvard contingent will take the first detail for a minimum service of three months. Preference will be given to men willing to stay six months.

The service will be either in England or in France, depending upon exigencies. Transportation both ways will be paid, and men will be given regular army pay. Men wishing to join the expedition will please apply in writing to Dr. Edward H. Nichols, 294 Marlboro Street, or to Dr. C. A. Porter, 254 Beacon Street, or to Dr. Wm. E. Faulkner, 290 Marlboro Street, stating their age, medical education and surgical training.

NURSES FOR DUTY IN A BRITISH BASE HOSPITAL.

Harvard, Columbia and Johns Hopkins Universities propose to provide a surgical unit to take charge of a base hospital for British wounded, for a period of six months. The expedition will start probably sometime between the first and the fifteenth of June.

For this unit there is desired a staff of seventy-five trained nurses, consisting of one matron, twenty-six sisters (head nurses), and forty-eight ward nurses.

Nurses will be paid regular army rates: sisters, "head nurses," 50 pounds per annum; staff nurses, "ward nurses," 40 pounds per annum. Free transportation to and from the hospital, probably an American ship will be provided.

The service will be for a minimum period of three months, and preference will be given to nurses agreeing to serve for six months. The service may be in England or in France, depending upon exigencies.

Nurses wishing to join this unit, will please apply in writing to Dr. E. H. Nichols, 294 Marlboro Street, Boston, stating their training and experience with references to doctors for whom they have worked. Nurses who have had special operating room experience, will please so state.

SOCIETY NOTICES.

MASSACHUSETTS SOCIETY OF EXAMINING PHYSICIANS AND SURGEONS.—Meeting at the Boston Art Club, May 27, 1915. "Unusual Cases of Intracranial Hemorrhage."

Speakers: Drs. G. B. Magrath, Timothy Leary, Wm. C. Whitney.

J. H. STEVENS, M.D., *Secretary*.

HARVARD MEDICAL ALUMNI ASSOCIATION.—At the coming meeting of the American Medical Association in San Francisco there will be a table d'hôte luncheon at the University Club, the date to be announced later, for members of the Harvard Medical Alumni Association. Dr. William P. Lucas of the University of California, San Francisco, is in charge of the arrangements.

A. B. EMMONS, 2d, M.D., *Secretary*.

PSYCHOPATHIC HOSPITAL MEETING.

On May 27, from 4 to 6 p.m., there will be held at the Psychopathic Hospital, 74 Fenwood Road, Boston, a meeting on the subject of neurosyphilis, Dr. Abner Post presiding. The program will consist of a discussion of social service methods and results by the staff of the out-patient and social service department, of clinical diagnosis by Dr. H. C. Solomon and other members of the staff and of post mortem studies by the members of the staff with the aid of the pathological service of the State Board of Insanity.

APPOINTMENTS.

AMERICAN COLLEGE OF SURGEONS.—*Dr. John G. Bowman* has been appointed director of the American College of Surgeons, with executive offices at 30 North Michigan Avenue, Chicago.

AMERICAN HOSPITAL ASSOCIATION.—*Dr. H. T. Summersgill*, superintendent of the University of California Hospital, has been appointed to succeed the late Dr. W. O. Mann of Boston as president of the American Hospital Association.

HARVARD UNIVERSITY.—*Dr. Richard Pearson Strong* has been appointed regular professor of tropical medicine.

MASSACHUSETTS STATE BOARD OF LABOR AND INDUSTRIES.—*Dr. Thomas F. Harrington* of Boston, at present director of school hygiene in the Boston Public Schools, has been elected deputy commissioner of labor and industries in the Commonwealth of Massachusetts.

RECENT DEATHS.

DR. WILLIAM H. FORWOOD, who died on May 12, at Washington, D.C., was born in Delaware in 1838. He received the degree of M.D. from the University of Pennsylvania and in 1861 entered the Northern army as assistant surgeon and served throughout the Civil War. He subsequently saw service in various Indian campaigns and in 1883 was a member of the expedition which explored Wyoming. In the Spanish War of 1898 he located the military hospitals at Savannah, Ga., and at Montauk Point. Prior to 1891 Dr. Forwood, who had then attained the rank of colonel, was chief surgeon of the department of California. Subsequently he was promoted to brigadier-general, and in 1902 served as surgeon general of the United States Army.

DR. MAX BERNHARDT, professor of neurology at the University of Berlin, died recently in that city at the age of 70 years.

DR. JOHN J. GALLAHUE, who died of cerebral hemorrhage in South Boston on May 17, was born in County Limerick, Ireland, in 1877. He was a gradu-

ate of the Massachusetts College of Pharmacy and of the Harvard Dental School in 1901.

DR. FREDERICK SHURTLEFF COOLIDGE, a fellow of the Massachusetts Medical Society, died at New York, May 14, aged 49 years. He received the degree of A.B. from Harvard in 1887 and that of M.D. in 1891. After serving as house officer at the Massachusetts General Hospital he removed to Chicago where he became professor of orthopedic surgery at the Rush Medical College. Later he removed to Pittsfield, Mass. where he became a member of the staff of the Pittsfield Hospital. He is survived by his widow and one son.

DR. WILLIAM NEILSON, a retired fellow of the Massachusetts Medical Society, died at his home in North Leominster, May 14, aged 75 years. Dr. Neilson was born in Halifax, N. S., Feb. 4, 1840, and was a graduate of the Harvard Medical School in the class of 1872. He was engaged in general practise at Marblehead until 1905, when he was retired and moved to Arlington Heights. He had lived in North Leominster since 1912.

DR. JOHN A. LEE of Boston, who died on May 5 in Framingham, Mass., was born in that city in 1887. He received the degree of M.D. from the Tufts Medical School in 1911 and for a time practised his profession in Dorchester and Roxbury.

ERRATUM.

We regret exceedingly that, owing to the accidental misplacing of a galley, there occurred an error in the arrangement of the paragraphs of Dr. Honeij's article, "A Study of Leprosy," on page 635 of the issue of the JOURNAL for April 29. The first five conclusions of the article are printed on that page instead of with the remainder of the conclusions on page 671 of the issue for May 6. This error was not discovered until too late for rectification, but will, of course, be corrected in the reprints of Dr. Honeij's article.

BOOKS AND PAMPHLETS RECEIVED.

The Gold-Headed Cane by William Macmichael, M.D. Paul B. Hoeber. 1915.

Tables for the Computation of Curves of Autocatalysis, with Especial Reference to Curves of Growth by T. Brailsford Robertson, M.D. Reprint.

Human Motives by James Jackson Putnam, M.D. Little Brown & Co. 1915.

Sleep and Sleeplessness by H. Addington Bruce, A.M. Little Brown & Co. 1915.

The Meaning of Dreams by Isador H. Coriat, M.D. Little Brown & Co. 1915.

CASES OF INFECTIOUS DISEASES REPORTED

to the Boston Board of Health for the week ending May 18, 1915.

	Total Cases.	Non-Residents.*
Diphtheria	82	3
Scarlatina	114	12
Typhoid fever	3	0
Measles	231	3
Smallpox	0	0
Tuberculosis	61	3

The death-rate of the reported deaths for the week was 17.70.

* Non-resident cases are included in the total cases.

The Boston Medical and Surgical Journal

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Address

PERCIVAL POTT, HIS TIMES AND HIS WORK.*

By ROBERT W. LOVETT, M.D., BOSTON.

ENGLISH surgery in the 18th century was a matter of formalism and system. There was but little inductive reasoning embodied in it and it was rough and cruel. It knew no pathology, as we understand the term, because Morgagni's great work, the foundation of modern pathology, was only published in 1759. Medical instruction was in its infancy, being in the early part of the century largely passed on from one to another, there being no clinical instruction till 1745, except at Leyden, where the great Boerhave, the leading medical figure of Europe, gave clinical instruction and sent his pupils throughout Europe. Toward the middle of the century this form of instruction began in England, and Cullen in 1757 made the innovation of delivering medical lectures in English instead of in Latin.

Surgery at this time was necessarily cruel because it was of the pre-anesthetic period and because of the drastic measures then in vogue. The cautery was heated in the hospital ward when the surgeon appeared for his rounds and dexterity and rapidity of technic were more valued than soundness of judgment or independence of thought. Cheselden, who died in the middle of the century, had performed a lithotomy in 54 seconds, which at that time consti-

tuted the record, and however admirable such a performance may have been it certainly now seems more rapid than would be altogether consistent with safety.

Dolor medicina doloris, that is, pain is the cure for pain, was accepted as the motto of the surgery of the time.

The 18th century was a time when medical science was at a low level, a level lower than that of such allied sciences as physics and chemistry, e.g. in the latter one finds such names as Laplace, Priestly, Lavoisier, Galvani, Volta, Franklin, Fahrenheit, Watt, Fulton, and Stephenson,—names which mark the beginning of a new epoch in their sciences. But in medicine there were few such corresponding men, Morgagni, Hunter and Jenner probably being the most eminent. It was, it must be remembered, a time of mental instability, the best expression of which is to be found in the erratic Rousseau, who represented the spirit of his age,—fantastic, unstable and irresponsible. The French Revolution had not yet come to clear the air of Europe and conditions were most unfavorable for the development of scientific medicine or surgery.

The expression of this spirit of the time was made evident by the substitution for orderly inductive reasoning of fantastic medical treatises by such men as Bishop Berkeley the philosopher, and John Wesley the founder of Methodism, and by an outbreak of quackery probably unparalleled in history.

Berkeley wrote, with regard to tar water, that it "would mitigate and even prevent the smallpox and erysipelas, that nothing is so useful as this

*Presented at the meeting of the Harvard Medical Historical Club on Tuesday, March 2, 1915.

in cases of painful ulcers of the bowels, in consumptive coughs and ulcers of the lungs with expectoration of pus, that it cures asthma, dropsy, and indigestion, and the Kings' evil, all kinds of sores and the foulest disorders," and John Wesley wrote a volume on domestic medicine called "Primitive Physic," which went through 32 editions, a sufficient evidence of popularity. To show the stage of the art represented in this work one or two remedies may be mentioned: "For pleurisy take half a drachm of soot," warm cow dung spread on leather with cummin is advised for "windy rupture," "rubbing with fasting spittle" is recommended for shrunken sinews, etc.

Quackery was rampant and was always the object of Mr. Pott's invincible hatred and continued attack. If there could be a more gullible public than that in America today, which swallows osteopathy, Christian Science, cancer cures and the like, it existed in England in the time in which Mr. Pott lived.

It must be remembered that quackery can boast of a very considerable antiquity and was a curse in ancient Rome. Galen compared the doctors in Rome to robbers, the only difference being, as he said, that the robbers practised their art in the hills, while the doctors robbed in the city. One Thessalus, who styled himself "the conqueror of doctors," walked through the streets accompanied by a crowd as large as that attracted by the mountebanks of the day.

But in the 18th century in England there blossomed out a group of clever rascals, both male and female, who obtained not only popular but royal support, and Queen Anne was a special offender, for being troubled with weak eyes, and evidently being fond of novelty and change, she passed from the hands of one quack to another. One of these, Wm. Read, is an example of the status of the fashionable quack of the day. An unsuccessful tailor, he set up in the Strand as a practitioner and at first pursued general practice, advertising that he could cure cancers, wens, hare lip, wry neck and deafness. Later, specializing in the eye, he hired a Grub street poet to write a poem to him, and an extract from the poem may be of interest.

Whilst British sovereign scales such worth has weighed,
And Anne herself her smiling favors paid,
That sacred hand does your fair chaplet twist.
Great Read, her own entitled oculist,
With this fair mark of honor, sir, assume
No common trophies from this shining plume.
Her favors by desert are only shared;
Her smiles are not her gift but her reward.
Thus in your fair plumes of honor drest
To hail the royal foundress of the feast,
When the great Anne's warm smiles this favorite
raise,

"Tis not a royal grace she gives but pays.

So great was his favor that he was knighted and subsequently became oculist to George the First.

But that there were other points of view with

regard to Read is shown by a stanza from another poem of the period.

Her majesty sure was in a surprise
Or else was very short sighted,
When a tinker was sworn to look after her eyes,
And the mountebank Read was knighted.

The quacks seem to have favored ophthalmology, for the Chevalier Taylor went about dressed in black with long flowing hair and was so facile in a curious inverted manner of speech in which he delivered his addresses that he was esteemed a man of learning, and numbered Gibbon and Handel among his patients, but Dr. Johnson was not deceived by him, but thought him the most ignorant man he ever knew, but sprightly, he added.

This fellow was asked to lecture in the University of Oxford, which is a comment on the standards of the time, and spoke in part as follows:—

"The eye, most illustrious sons of the Muses, most-learned Oxonians, whose fame I have heard celebrated in all parts of the globe—the eye, that most amazing, that stupendous, that comprehending, that incomprehensible, that miraculous organ, the eye is the Proteus of the passions, the herald of the mind, the interpreter of the heart and the window of the soul. The eye has dominion over all things. The world was made for the eye and the eye for the world. My subject is light, most illustrious sons of literature—most intellectual. Ah, my philosophical, metaphysical, my classical, mathematical, mechanical, my theological, my critical audience, my subject is the eye. You are the eye of England—England has two eyes, Oxford and Cambridge, etc., etc."

Proprietary medicines flourished, including Ching's worm powders, John Hooper's female pills, and Della Lena's powder of Mars. The curing of disease by touch was revised by a Mr. and Mrs. Louthenbourg, who acquired an enormous following, while another quack travelled in a coach drawn by six horses, the van being filled by black cats and surrounded by gorgeously appareled outriders.

But if the quack affected striking clothes and methods which would not now be considered in good taste, even for quacks, we must remember that in dress the fashionable English doctor of the day was not, from our point of view, quietly appareled. He wore a powdered wig, a coat of red satin or brocade, short breeches and buckled shoes, and carried a gold-headed cane; on occasions of ceremony he might vary the color of his coat and appear, as in one instance, in violet velvet.

The object of Mr. Pott's especial hatred in this group of historical fakirs was one Mrs. Mapp, a bonesetter. She was the daughter of a bonesetter, but quarreled with her father, and wandered over the country, being popularly known as "crazy Sally." She married at Epson, but she and Mr. Mapp were not altogether

congenial, and after thrashing her several times during the honeymoon, at the end of two weeks he appropriated her savings and left her. A short but eventful matrimonial career being thus ended, she turned again to her profession and established a tremendous following. She lived at Epsom but drove once each week to London in a coach and four with servants wearing gorgeous liveries. When she went to the theatre, so great was her fame that the house would be crowded. Opinions as to her merits naturally differed, but Sir Hans Sloane, who had seen her manipulations, was so impressed that he confided to her charge his niece "whose back had been broke nine years and stuck out two inches." Mr. Pott, on the other hand, wrote of her as follows:—

"We all remember that even the absurdities and impracticability of her own promises and engagements were by no means equal to the expectations and credulity of those who ran after her; that is of all ranks and degrees of people, from the lowest laborer or mechanic up to those of the most exalted rank and station, several of whom not only did not hesitate to believe implicitly the most extravagant assertions of an ignorant, illiterate, drunken female savage, but even solicited her company; at last seemed to enjoy her society."

But apparently the most facile impostor of all was one Mrs. Joanna Stevens, who devised a remedy for stone which was purchased for the public good by parliament, and proved to be a mixture of egg shells, garden 'snails, swines' cresses, soap, burdock, and other innocuous vegetable ingredients. Before its purchase by parliament she had offered to sell the recipe for \$25,000, but a popular subscription failed to reach this amount although much money was raised.

Into this arena was born in 1714 Percival Pott, the son of a scrivener. The father was a man of small means and lived where is now the bank of England. His father soon died, leaving a fortune so small that Pott's share amounted to less than £5, which was found among the surgeon's effects after his death, wrapped up by itself and labelled as his share of his father's estate, which he had kept intact for some seventy years.

His early career was commonplace, a relative of his mother, the Bishop of Rochester, charged himself with his education and he was sent to a small classical school in the hope that he would enter the church. But he decided on medicine, and at the age of 16 was apprenticed to Mr. Nourse, surgeon at St. Bartholomew's Hospital, who lectured in those days on anatomy, not at the hospital but at a house in Aldersgate street, and to Pott fell the duty of acting as Nourse's prosector. From the classical school he acquired a knowledge of the classics which lasted him all his life, and from his dissection resulted an accurate knowledge of anatomy which was of

great use to him. At the age of 22, having paid £254 for his apprenticeship, he took rather an expensive house and started out for himself as a London practitioner.

But he must even then have been a person of some importance, for in the very year in which he started out for himself he was due on a certain date to be examined for his diploma in the Barbers and Surgeons' Company, for the barbers and surgeons, it must be remembered, were not separated for some years to come. The examiners were assembled, but Mr. Pott had not fulfilled the formality of calling on all the examiners to invite them to his examination, but presented as an excuse for not doing so that he had been sent for out of town to attend Sir Robert Goodsall's lady and had not been able to return in time. It was then "resolved that the court would proceed to the examination of the said Mr. Pott notwithstanding his default in attending the examiners, but this is not to be a precedent in time to come to any other person."

From the time that Mr. Pott took this venturesome step in establishing himself in Fenchurch street he went steadily forward, and as his fortunes prospered he moved once or twice, and finally found himself in Lincoln's Inn Fields. He possessed the largest practice of his time in London and his advice was sought by the great and the fashionable, and he was in much demand as a consultant and people came to him from distant lands. The charge was made against him that his great success made him indifferent to the needs of the poor, but his friends claimed that the charge was unjust.

He received professional recognition first by being appointed assistant surgeon to St. Bartholomew's Hospital and later surgeon, a post which he resigned in 1787, a year before his death, having served the hospital as he said "man and boy nearly half a century." He was made a Fellow of the Royal Society in 1764 and in 1786 he received an honorary diploma from the Royal College of Surgeons of Ireland. He was made governor of the College of Surgeons of England in 1765, after it separated from the barbers. He died in 1788 from exposure during a long ride into the country to visit a patient and was buried in Aldermary church in Bow Lane in London.

Mr. Pott lived in stirring times, in addition to being a time when a renaissance was beginning in surgery. He was born in the year when George the First ascended the throne, and he saw the reigns of three Georges. Walpole and the two Pitts were the premiers of his time and he saw the beginning and the end of the American War of the Revolution. The South Sea bubble and the rise of Methodism through the leadership of John Wesley, whose life was contemporaneous with his, left their mark on the life of England. In 1765 Watt invented the steam engine and Adam Smith's "Wealth of Nations" was published, which must be reckoned

as one of the epoch-making books. Living as he did in London and being the important person that he was these results must have influenced his life, for he must have been necessarily in touch with the leaders of men in political and intellectual life. But he never sought political preferment, but quietly kept his path, teaching, writing, operating, healing the sick, always striving for simplicity, for gentle methods and for straight thinking. He was one of the pioneers of modern surgery, and one would search in vain among the list of his English predecessors to find really great names in surgery, but succeeding him, from among those whom he taught, began a new school. His most eminent pupil was John Hunter, shortly after whom came Abernathy, the beginners of a brilliant succession of English surgeons.

In person Mr. Pott was of less than middle stature, but elegant in dress and graceful in deportment. His pictures suggest some facial resemblance to Dr. Samuel Johnson. In conversation he was witty and interesting and possessed an abundant fund of anecdote, both ancient and modern, and his classical knowledge was extensive. He was essentially domestic in his tastes and was happiest surrounded by his large family, having four sons and four daughters, one of the latter becoming the wife of Sir James Earle, a celebrated surgeon who became Mr. Pott's biographer.

But Mr. Pott, brilliant as a surgeon, successful as a teacher, cultivated and popular as a man of the world, really owes his fame to his writings. Up to 1756 he had written but one unimportant paper, but in January of that year, while riding in Southwark, he was thrown from his horse and sustained a compound fracture of his leg of the variety since then known by his name of Pott's fracture, and described by him in his treatise on fractures and dislocations. Conscious of the dangers of a compound fracture he assumed temporarily the direction of his own case, and lying still on the cold pavement would not allow himself to be moved until he had sent to Westminster for two chairmen, who came bringing with them their poles. Still lying on the pavement he negotiated the purchase of a door, which was then nailed to the poles, and on this improvised litter he was transported a long distance to his own house, then near St. Paul's cathedral. At a consultation of surgeons held immediately after his arrival, amputation of the leg was decided on and the instruments were being laid out when his old preceptor, Mr. Nourse, arrived, having been detained so that he was not present at the consultation. He differed from his colleagues and believed that the leg could be saved. After some discussion this view was accepted by the others, and it proved that he was right, for the wound healed practically by first intention.

During the enforced idleness of his convalescence Mr. Pott turned to authorship, and al-

though he was then forty-three, there then began the most useful period of his long career. As his biographer says, "It is by no means impossible that without some powerful check to the train of his pursuits, he might never have discovered in himself those superior powers of scientific disquisition, that correct taste and masterly command of language which have placed him in the front rank of medical writers."

He first wrote of congenital hernia, a subject then but little understood, which involved him in a controversy as to priority with Wm. Hunter. But Wm. Hunter was a fire eater who thrived on controversy, and the matter soon dropped. Then followed in more or less rapid succession treatises, the most important of which were on head injuries, hydrocele, fistula in ano, fractures and dislocations, and finally his epoch-making essays on the disease which still bears his name—Pott's disease of the spine. Originally publishing this in 1779, he amplified it in 1783, and it remains the last of his literary works as well as the one on which his fame largely rests, and deservedly so for he threw light into a dark corner by taking out of the subject of "spinal curvature," so called at that time those cases of posterior curvature of the spine due to destructive disease of the vertebrae, now recognized as tuberculosis, which up to this time had been confused with lateral curvature due to wholly different causes.

The knowledge of spinal curvature up to Pott's time had remained practically what it was in the time of Hippocrates who had advised for the treatment of these cases of posterior spinal curvature that the patient should be tied by the legs to the upper round of a ladder, and while hanging head down the ladder should be dropped from a height, striking with its lower end on the ground, thus straightening the patient's spine. As a further refinement of the treatment, he suggested, "It is also safe for a person to sit on the hump while extension is being made, and raising himself to let himself fall down again upon the patient."

When we come to Ambroise Paré, born in 1510, we find him where we left Hippocrates 2000 years before. I quote from his writings: "A dislocated vertebra standing forth and making a bunch is termed in Greek kyphosis, but when it is depressed it is called lordosis, but when the same is luxated to the right or left side it maketh a scoliosis, which, wresting the spine, draws it into the similitude of the letter S. . . Fluid and soft bodies, such as children, are very subject to generate this internal cause of defluxion. Thus nurses, while they too straitly lace the breasts and sides of girls so to make them slender, cause the breast bone to cast itself in forward or back or else the one shoulder to be bigger or fuller, the other more spare or lean. The same error is committed if they lay children frequently and long upon their sides, then upon their backs, or

if in taking them up when they walk they take them only by the feet or legs and never put their other hand in their backs, never so much as thinking that children grow most toward their heads."

Although the treatment became more gentle, the knowledge of pathology and causation remained about the same as that of Paré until Pott took up the matter, and with his clear insight established the affection as an entity although his attention was first attracted more to the paralysis resulting from the curvature than to the curvature itself. The title of his article was "Remarks on that kind of palsy of the lower limbs which is frequently found to accompany a curvature of the spine and is supposed to be caused by it, together with a method of cure."

How great an achievement this was when one considers the tendency of his age may be best appreciated by a short extract from his work which will show how accurate was his description of the condition:—

"The disease of which I mean to speak is generally called a palsy, as it consists in a total or partial abolition of the power of using, and sometimes of even moving the lower limbs, in consequence, as is generally supposed, of a curvature of some part of the spine.

"To this distemper both sexes, and all ages, are equally liable. If the patient be an infant, it becomes an object of constant, though unavailing, distress to its parents; if an adult, he is rendered perfectly helpless to himself, and useless to others, which, of all possible states, is surely the very worst. . .

"When it affects a child who is old enough to have already walked, and who has been able to walk, the loss of the use of his legs is gradual, though in general not very slow. He at first complains of being very soon tired, is languid, listless, and unwilling to move much, or at all briskly; in no great length of time after this he may be observed frequently to trip, and stumble, although there be no impediment in his way. . .

"Until the curvature of the spine has been discovered, it generally passes for a nervous complaint; but when the state of the backbone has been adverted to, recourse is almost always had to some previous violence to account for it, some pulling, lifting, carrying, or drawing a heavy body, which is supposed to have hurt the back. . .

"The curvature of the spine, which is supposed to be the cause of this complaint, varies in situation, extent, and degree, being either in the neck or back, and sometimes, though very seldom, in the upper part of the loins; sometimes comprehending two vertebrae only, sometimes three, or more, by which the extent of the curve becomes necessarily more or less; but whatever may be the number of vertebrae concerned, or whatever may be the degree or extent of the curvature, the lower limbs only feel the effect—

at least I have never once seen the arms affected by it. . .

"While the curvature of the spine remains undiscovered or unattended to, the case is generally supposed to be nervous, and medicines so called are most frequently prescribed, together with warm liniments, embrocations, and blisters, to the parts affected; and when the true cause is known, recourse is always had to steel stays, the swing, the screw chair, and other pieces of machinery, in order to restore the spine to its true and natural figure; but all, as far as I have observed, to no real or permanent good purpose; the patient becomes unhealthy, and, languishing for some time under a variety of complaints, dies in an exhausted, emaciated state; or, which is still worse, drags on a miserable existence, confined to a great chair, or bed, totally deprived of the power of locomotion, and useless both to himself and others. . .

"The remedy for this most dreadful disease consists merely in procuring a large discharge of matter, by suppuration, from underneath the membrana adiposa on each side of the curvature, and in maintaining such discharge until the patient shall have perfectly recovered the use of his legs. To accomplish this purpose, I have made use of different means, such as setons, issues made by incision, and issues made by caustic; and although there be no very material difference, I do, upon the whole, prefer the last. A seton is a painful and a nasty thing; besides which, it frequently wears through the skin before the end for which it was made can be accomplished; issues made by incision, if they be large enough for the intended purpose, are apt to become inflamed, and to be very troublesome before they come to suppuration; but openings made by caustic are not in general liable to any of these inconveniences, at least not so frequently, nor in the same degree; they are neither so troublesome to make or to maintain. I make the eschars on each side the curve, taking care to leave a sufficient portion of skin between them; in a few days, when the eschar begins to loosen and separate, I cut out all the middle, and put into each a large kidney bean. When the bottoms of the sores are become clean by suppuration, I sprinkle, every third or fourth day, a small quantity of finely powdered cantharides on them, by which the sores are prevented from contracting, the discharge increased, and possibly other benefit obtained. The issues I keep open until the cure is complete; that is, until the patient recovers perfectly the use of his legs, or even for some time longer. . .

"In the preceding tract I have related the appearances which the parts constituting the seat of the distemper make upon examination after death; or, to speak more properly, the different states of these parts in different persons, and at different periods of this disease. These, though necessarily subject to considerable variety, may, I think, be reduced to three general ones.

"1. A small degree of an increase of size in the bodies of the vertebrae, forming the curve, with an apparent laxity in their texture, and a relaxed state of the connecting ligaments, by which they seem to have lost part of their power of holding the bones together.

"2. A more considerable and more apparent enlargement of the same parts of the vertebrae, whose spongy texture becomes more visibly spread through their whole substance, and tending towards a caries, with an apparently distempered state, both of the ligaments and of the intervening cartilages.

"3. A truly carious state of the bodies of the bones; a dissolution or destruction of the cartilaginous substance between them; and a lodgement of sanies on the surface of the membrane enveloping the spinal marrow.

"These are, I think, the most particularly different states or stages of the disorder, and are such as, in my opinion, decisively mark the true nature of it.

In the second paper, published four years later, Mr. Pott simply elaborates his theme and gives more instances of cure.

I was at first at a loss to explain why this treatment should appear to so accurate an observer as Mr. Pott to cure the palsy, because with our more extensive knowledge of the pathology one would not expect any benefit from its use, but I found that it was the practice of Mr. Pott to keep these cases in bed during the treatment by setons, etc., and today we are coming to recognize that recumbency is, after all, one of the essentials for the thoroughly successful treatment of this disease.

I cannot close what I have to say better than by quoting the epitaph of Mr. Pott engraved on a marble slab above his tomb in Aldemary Church, Bow Lane, which was written by his son, archdeacon of St. Albans:—

In Memory

OF PERCIVAL POTT, ESQ., F.R.S.

Surgeon of St. Bartholomew's Hospital during
Forty-two Years, Who departed this Life
December 22d, 1788, aged 75.

He was singularly eminent in his Profession, to which he added many new Resources, and which he illustrated with matchless Writings. Let Posterity revolve the Sum of his Experience, that the World may still enjoy the Benefit of his Successful Practice. He honoured the collective Wisdom of past Ages; the Labours of the Ancients were familiar to him; he scorned to teach a Science of which he had not traced the growth; he rose, therefore, from the Form to the Chair. Learn, Reader, that the painful Scholar can alone become the Faithful Teacher. But his Studies had a double Issue; whilst he gathered the Knowledge of his Predecessors, he perceived their Errors, and corrected them; he discovered their Defects, and supplied them. Original in

Genius, prompt in Judgment, rapid in Decision, he directed Knowledge to its proper Ends; but pursued them when the Aids of Information were exhausted; the last Steps, therefore, and great Improvements, were his own.

His Integrity is before his Judge; Without it, his Skill might have profited Mankind, but could have claimed no Record within these Walls. His private Virtues, his signal Tenderness to his Family, completed an Example, Amiable, Useful, Great.

Original Articles.

LATE RESULTS OF SURGICAL TREATMENTS FOR FLEXED SCAPULAE, WITH A DISCUSSION OF THE SUBJECT.

BY HERMAN W. MARSHALL, M.D., BOSTON.

[From the Orthopedic Department of the Massachusetts General Hospital.]

ANATOMICAL variations of scapulae are very common, as is well known, and extreme degrees of these peculiarities not infrequently possess pathological significance. These circumstances led Goldthwait to devise the operation of removing the tips of the superior angles, and he has proved that painful symptoms in backs may be stopped if offending exostoses or abnormally flexed upper parts which scrape over the ribs are trimmed sufficiently to prevent further friction and irritation. This operation has been performed by orthopedic surgeons at the Massachusetts General Hospital upon eleven patients in the orthopedic ward during the four years ending Jan. 1, 1912. All of these patients, therefore, have had three or more years elapse since their operations, and they will be reported individually and collectively in this paper.

GENERAL IMPRESSIONS SUGGESTED BY THE GROUP.

This short series shows that surgical treatments afford very great relief in suitable instances, also dangers of the operation itself under good conditions are clearly indicated. The worst that has happened to any patient has been comparatively trifling sepsis in one case from catgut sutures, and this trouble subsided entirely within a short time. Generally very little discomfort has been noticed by patients immediately following their surgical treatment, and in ten or twelve days they have had enough use of the arms usually to permit return again to their homes. The most satisfactory late results indicate that two or three months ought to be reckoned as a minimum amount of time that will be required for annoying symptoms of soreness after very active use to subside; and some of the best cases have needed a year's time for perfect recovery of normal shoulder functions.

From observing best possibilities of operations and from remembering very favorable terminations of some non-operative cases all patients can be grouped into three classes.

First, those who should receive prompt surgical care.

Secondly, those who should delay having operative interference.

Thirdly, a border-line class.

Regarding the third group there will be always a variety of opinions on account of the diversity of views held by different medical men. The writer submits therefore his own interpretations.

The title of the paper indicates that anatomical defects are being dealt with, yet it is well to remember, whether spoken of or not, that physiological peculiarities also always coexist and enter into every situation, however sharply attention may be focused on structural variations and however striking the latter may be. Some of the cases reported show there were abnormal scrapings of the shoulder blades over the chest muscles, and that these palpable rubbings were stopped by removal of the tips of superior angles of the scapulae yet sometimes without subsidence of painful symptoms. Clipping the bones did not alter individuals' constitutions, and delicate healths with occasional exacerbations of pains continued because the blood continued to be rather poor and variable. Accordingly it seems that the ever present factors, the quantitative composition and variations in the blood from time to time must be thought of always with equal care together with purely mechanical and anatomical causes.

1. The operative group which has been mentioned should include, the writer thinks, those patients of adult age, especially of middle life, who present the following features. Painful symptoms of several years duration that have been associated with otherwise fairly good health. In connection with these limitations there should be localized tenderness combined also with abnormal crepitus at the shoulder blades.

Extremely acute cases of much shorter duration should be included in the first group. (Case 3 of this series.) An artificial dividing line can be suggested as a minimum limit for operative interference, namely, all cases of moderate severity in adults who have shown local signs and pathological symptoms continuously for six months, or milder cases of one year's continuous duration.

2. The non-operative group comprises adult cases of moderate severity that have received no treatment, or those patients that have been treated unsatisfactorily for less than one month with protective and medicinal measures. In mild cases several months must elapse before they should be considered as having passed on from the second class into the third debatable group, from which they finally may emerge at the end of the

year into the first mentioned operative group. Youthful patients with mild symptoms remain in the second non-operative class until they have grown up.

3. The last more doubtful group contains moderately severe types of one to six months' duration; mild cases from several months to one year's duration; and the class of neurasthenic debilitated patients who present signs or symptoms of pathological scapula irritation. Further discussion will be more profitable as special points are taken up in connection with individual cases, and attention will be turned next to consideration of pathological symptoms and signs in their relation to anatomic differences.

Certain patients show very good results who did not exhibit at their operations exceptionally great anatomical peculiarities, so that it seems as though long durations of their irritations were of more importance than over-developed and abnormal flexions of their shoulder blades. However, this is not denying that anatomic variations occur, for Goldthwait* has clearly demonstrated this fact, nor should the greater irritation be doubted of sharply flexed scraping tips of bone in contrast to the even pressures of broad smooth surfaces. Simply it seems that some cases without great structural peculiarities find parallels in certain inflammations of other parts of the body. Knee joints, for example, not infrequently develop insidious synovial inflammations, and then normal functions of normal bones become too irritating. Normal functions are sufficient under such circumstances to keep up chronic pathological conditions indefinitely until obscure vascular defects which have been acting are corrected, and mechanical protection also is simultaneously afforded.

In contrast with patients possessing scapulae of average development with pathological symptoms, it should be recalled that many healthy persons are carrying around flexed and over-developed scapulae without any abnormal indications of these variations, just as variations in other bony structures, anomalies of the vertebral column for illustration very often occur without symptoms or signs. All such individuals, however, have their health constantly menaced to greater or less degree corresponding to degrees of anatomical variation; yet they are enabled to maintain their normal healthy activities because of high degrees of resistance of the tissues and on account of compensating powers of related parts.

It is not of rare occurrence to find slight *scapular crepitus* without symptoms in muscular well-developed men, and it seems that too much importance should not be attached to mere smooth rubbing of the shoulder blades over the irregularities of the chest wall. When combined with tenderness localized at the prominent edges of the scapulae, friction possesses then much

* Goldthwait, Painter, and Osmond: *Diseases of the Bones and Joints*.

more significance. (Case 1 of this series is an illustration of a person who had crepitus before operation and none afterwards, yet who continues to have pains in the shoulder and arm.)

Tenderness in shoulder blades generally means local inflammation; and in routine examination of many back cases in any large orthopedic clinic there are numerous examples discovered of slight tenderness without crepitus among scapulae of debilitated persons. If these individuals do not receive protection and personal hygienic treatment they are liable to develop chronic irritations with the gradual appearance of abnormal frictions of the blades against the chest. Perhaps it will be readily understood that when patients come for the first time with well-developed signs and symptoms it is often difficult to say whether anatomical peculiarities or vascular defects are primary origins; yet, whichever were at fault, surgical interference depends more on the severity and duration of symptoms than on underlying causes. The surgical problem simply is one of removal of irritating bony angles regardless of the manner they acquired their irritating peculiarities, and more or less irrespective of whether they are excessively or slightly developed.

Pain, as shown in this series, is referred by patients to the scapulae, to the region between them, and around to the sternum in front of the chest in acute cases. It radiates up behind the ears at times and also down the arms, and there may be crampy sensations in the trapezius muscle as the latter tries involuntarily to hold the shoulder in comfortable position. Pain is noticed upon motion, especially when the arms are moved in directions that demand greatest rotation of the blades, as Goldthwait has called especial attention to. Shrugging the shoulders, with arms hanging passively at the sides, will produce painful symptoms due to scraping of abnormal scapulae. The pains of subdeltoid bursitis, inflammation of the shoulder joint itself, injuries of the acromio-clavicular joint, neuritis, and myalgias have to be differentiated; but in combination with local tenderness and scapula crepitus there is usually little difficulty in determining scapula lesions.

Sex.—Four of the eleven cases are men and seven are women.

Posture.—All exhibit greater or less degrees of round shoulders, and they help to confirm Goldthwait's idea of an origin in habitual bad posture of the shoulders during the early years when the bones are readily moulded into various degrees of flexion. As the bones strengthen and harden in adult life they retain afterwards their peculiarities permanently, and can be changed only by operation.

Age.—At the time of surgical interference the eleven patients of this series ranged from fifteen years to forty-two years of age, averaging twenty-seven. The girl of fifteen still has pain in her arm, while the man of forty-two at the

other extreme has perfect function of his shoulders. It seems that the best results of operation are seen in middle life, when several years' duration of symptoms have made the advantages of surgery undeniable, and while the individuals are still in active robust health.

INDIVIDUAL CASES.

CASE 1. C. G. Slightly built, nervous girl of 15 years of age. Pain in right shoulder noticed intermittently for many years. Symptoms of burning sensations at night and after using the arm. Pain referred especially to supraspinatus region of the scapula, also at times down the entire arm to the finger tips. Frequent feeling of a lump in the muscles, although no tumor ever has been found upon examination. Treated before operation in the out-patient department of the Massachusetts General Hospital, with local protection obtained by immobilizing the shoulder with adhesive straps, and with a shoulder brace to hold the scapula in the position of greatest comfort. These measures, also exercise and massage, failed to relieve the pain. Examination before operation showed a fairly good standing posture but with slight scoliosis. The right scapula was a trifle more prominent than the left one and tenderness was localized along the vertebral border near the superior angle. Very distinct crepitus could be felt while the arm was being fully elevated, and this scraping had been noticed by the patient herself.

On Nov. 1, 1911, the tip of the superior angle was removed and the patient was discharged from the hospital in ten days. The operation wound healed perfectly without adhesions, although buried catgut sutures caused a little trouble during the first few months afterwards.

Three years and two months after the hospital treatment the patient returned for observation. She complained then of the same burning sensation in the back and arm, and there was the same feeling of a lump, at times, over the shoulder blade. Examination at this time showed a perfectly healed operation scar, arm motions were not restricted at all, no tenderness was observable along the edge of the scapula, and there was no crepitus whatever on movement. The affected shoulder and arm appeared just a little smaller than the opposite one, and the patient explained that this arm tired rather easily. She still appeared delicate, weighed 110 lbs. and had a recent history of tonsillitis and acute articular rheumatism. Upon questioning, the patient would not make up her mind whether or not she thought the operation had been a benefit.

DISCUSSION OF CASE I.

The persistent burning sensations and pain which were complained of at last examination probably would have been noticed regardless of operative interference, for nothing was done surgically that can be held responsible for the continuance of symptoms; on the contrary, marked crepitus and evidences of local inflammation were removed completely. It is impossible to say positively whether these latter definite abnormal signs, local tenderness and crepitus, would have subsided entirely or not without surgical treatment. One possible view

is that the operation did no good although it did no harm beyond submitting the patient to the accompanying inconvenience. Another opinion, equally well justified, is that future trouble probably was avoided, that no harm was done, that a perfectly definite defect was removed which would have become an increasing menace, and that the results have justified the treatment.

CASE 2. Well developed woman of thirty-nine years. She had suffered for fifteen or more years with pain between the shoulders and was unable to hold her arms long above her head. The arms became so "lifeless and tired" that she was obliged always to let them drop at the sides very soon. Examination previous to operation revealed marked tenderness at the superior angles of both scapulae, and the examining fingers could distinguish that the upper parts of the shoulder blades were abnormally prominent. Both scapulae were trimmed in February, 1911, and the patient made an uneventful recovery. Some relief was noticed almost immediately, but tenderness and occasional pains continued troublesome between the shoulders for nearly a year. After surgical treatment the shoulders at first were partially immobilized with adhesive straps, then regular exercises were tried without appreciable benefit being noticed; high frequency electrical treatments next were experimented with, and repeated applications of radiant heat seemed to the patient finally to improve the symptoms gradually.

When last seen three years and ten months following surgical treatment the patient stated that she could then use both arms almost perfectly, being able to hold them above her head without discomfort. She noticed only that the right arm still became rather tired from long use, and at such times pain also would return in it and in the back. At this last examination both operation scars were perfectly healed, slight tenderness to strong pressure persisted over the upper vertebral part of the right scapula but none was present over the left scapula. No crepitus was felt, and all arm motions were made easily in a normal manner. The patient declared that the operation had done her a great deal of good, and that she then was very much better than she had been for many years.

DISCUSSION OF CASE II.

The good results were due it seems almost wholly to removal of the obvious abnormalities at the superior angles of the two shoulder blades; and the slow, nearly complete, recovery in a year's time, after such long duration of symptoms previously is the most interesting feature of the case.

CASE 3. M. C. Muscular man of forty-two years, who had knife-like pains in his shoulder blades extending around at the same level to the sternal region in front. Symptoms were noticed when carrying heavy quarters of beef upon the shoulder. Continuance of this work aggravated the first mild ache until it became unbearably severe after four months. He had suffered no single severe trauma or recent infection.

Before the operation soft crepitus could be felt on moving each scapula, and the upper vertebral border

of the left one was tender to pressure. Moderate incurving of both tips was found at operation in December, 1908, and pieces of bone one-half an inch across were removed from them. In ten days the patient could use his arms comfortably, the operation wound had perfectly healed, and he was discharged relieved.

One year later there was a return of pain between the shoulder blades, and mechanical exercises were advised; but these were not carried on long because the symptoms subsided.

Four years after operation pains in elbow, wrist and shoulder were complained of, and an x-ray showed some hypertrophic changes about the elbow.

At the last visit, five years after surgical treatment, both shoulders were perfectly normal in strength and function. There was no crepitus or tenderness over the scapulae, and the patient continued to work handling heavy beef. He thought his operation had been a very great benefit to him.

DISCUSSION OF CASE III.

Would the very acute symptoms in this case have subsided if the arms and shoulders simply had been treated by immobilization? It seems probable that these pains would have quieted down slowly under protection if the latter were persisted with long enough, but also, on the other hand, perhaps there would have been much more trouble in the two upsets subsequently than was actually experienced with the two scapulae that already had been trimmed.

The worst that can be said in this instance is that surgery theoretically may possibly have been unnecessary, yet this cannot be proved. It is certain that the patient wanted as prompt relief as possible from his severe symptoms, and this was given him in a few days. At the last visit he was greatly pleased and had perfect use of his arms; therefore, taking into account all circumstances, it seems that the operation was indicated and has justified itself.

Predictions as to the future in this case might be hazarded, in view of the two slight recurrences of symptoms, that autointoxications or debilitated states will be likely to cause a return of the shoulder pains; and that prompt regulation of vascular abnormalities may constitute as prominent a feature of future therapeutic procedures if any are needed, as surgery has been in past treatments.

CASE 4. S. W. C. Fairly well developed woman of thirty years. Pain in left shoulder blade for sixteen or seventeen years. Symptoms noticed mainly after using the arms. Painful feelings described as a dull ache, which led to the desire to shift continually the position of the arm. It was impossible for her to get into a comfortable attitude, and after much exercise very severe pains darted up the neck behind the ear and also down the arm. At the examination before operation a distinct click was discovered on moving the scapula, and its superior angle could be felt considerably flexed.

The patient had tried various local applications without benefit during the earlier years of the trouble, and had become resigned to the pain. She

came to the Massachusetts General Hospital complaining of cough and progressive weakness, and the possibility of incipient tuberculosis was investigated. She incidentally mentioned the back pain, and was referred then to the orthopaedic out-patient department, where protection of the shoulder was attempted unsuccessfully for two months before surgical measures were advised.

In March, 1909, the superior angle of the left scapula was cut off, and the patient was discharged from the hospital in nine days with the arm comfortably supported in a Velpeau bandage. The operation wound healed quickly and perfectly. At the end of three months she still complained of some soreness after sweeping and other household duties, but in less than a year all symptoms had entirely gone and they never returned.

The last observation was made five years and ten months after surgical treatment, and at this time there were no local signs of tenderness or crepitus. The patient said the operation had afforded wonderful relief; that it was impossible for her to describe the great improvement which had taken place over the continuous nagging pain which she previously always had endured. She was able when last seen to labor daily in a large Boston department store, doing very active work.

DISCUSSION OF CASE IV.

The hospital records state that at operation the scapula was found decidedly flexed, and, therefore, the late results indicate beyond any reasonable doubt that the improvements observed should be ascribed largely to removal of the faulty part of the bone.

An interesting feature of this case was the preliminary unsuccessful attempt to relieve symptoms by immobilization. The shoulder was held with adhesive straps in a position which seemed correct to the observer, and the most acute pains were prevented by this protection, yet the patient begged to have this treatment stopped after a few days, for the chronically inflamed parts continued to ache incessantly and the feeling of weight and pain became unbearable when the position of the shoulder blade could not be shifted. These symptoms were uncontrollable with salicylates.

Most readers will feel inclined to believe that an operation was clearly the best method of treatment in this instance, although there may have been a theoretical possibility of subduing the irritation by very prolonged tedious non-operative measures with disuse of the arm.

CASE 5. E. W. T. Round-shouldered woman of twenty-seven years. History of pains and dull aches in shoulders for seven years, worse for one year preceding operation. Patient said she had never been very strong as a girl. Examination demonstrated distinct crepitus over each shoulder blade when it was moved over the chest wall, and considerable flexion of both superior angles could be felt. Pain was referred to the scapulae and to the trapezius muscle above in the shoulders and neck. The weight of the clothing bore uncomfortably upon the shoulders, and lying on the back had become exceedingly unpleasant on account of pain it caused.

On May 2, 1910 both scapulae were operated on and the tips of their upper angles cut off. In ten days the patient was allowed to go home, returning to the out-patient department for further care. She was held intermittently for six months afterwards with adhesive strips, then was fitted with a shoulder brace which she possessed at her last visit.

Three months after her surgical experience she became discouraged with indefinite persistent pains in the back of the neck, but at the end of a year most of the symptoms had gone.

At the last visit four years and eight months after her surgical operation she was feeling very well, had gained twenty pounds in weight, could use her arms freely and lie comfortably in any position. She noticed a little soreness yet, however, after vigorous prolonged sweeping, and there was just a little tenderness along the vertebral edge of the left scapula, but no scraping of the bone on motion. No supports were used.

She said that she had discarded the shoulder brace three years ago, except for occasional short periods when soreness returned after too much use of the arms. She was doing her own housework when last seen. Chronic constipation continued to bother her, and tonic eliminative measures,—sodium phosphate, elixir of iron, quinine and strychnine phosphates, and extra water drinking—were suggested for trial periods of three weeks whenever necessary.

She considered her operation a very great benefit and said that it had transformed her from an invalid into an active woman.

CASE 6. J. M. C. Forty-one years of age. Teamster. Patient fell from third story window while drunk five years before operation and landed on his back. He suffered with rheumatism and a dull ache in his shoulders afterwards and had difficulty in raising the arms above the head, also something seemed to catch him in the arms and shoulders when he lifted. Upon examination distinct crepitus was felt under both shoulder blades, and he was promptly advised to have the scapulae surgically examined. The under surface of the superior angles were found roughened, but the deformities of the upper portions were not excessive. Both scapulae were trimmed and smoothed. There was very little post-operative discomfort and the wounds healed perfectly. He returned to the hospital three weeks after his surgical treatment and this was the last time he was seen. Then there was marked relief from the previously observed symptoms.

CASE 7. C. H. C. Twenty-one years of age. Hotel clerk. He had had soreness in the left side for one year which extended down the arm and up along the back of the neck. The symptoms had become severe enough to prevent work when he first came for treatment, and he was immediately referred to the orthopaedic ward for surgical care.

The examination showed localized tenderness with very marked scraping of the left shoulder blade but with none over the right shoulder. The angles of both scapulae were removed. There was very little post-operative discomfort. Numbness in the arm and neck had improved but had not entirely cleared up when he was discharged. He had good motion in the arm and the wound had healed solidly. He never returned nor was heard from after he left the hospital nine days from the time of operation.

CASE 8. M. H. Shoemaker. Examination revealed definite shoulder crepitus in a droop-shouldered Armenian of twenty-one years. He exhibited old scars of wet cupping over shoulder blades and complained of inability to stand erect or to throw shoulders back. For two weeks he had had pain in the left side. Both shoulder blades were trimmed and the wounds healed perfectly in thirteen days. The patient could stand more erect immediately afterwards and there were no abnormal rubbings of the scapulae on the chest wall when he was discharged. He was never heard from after leaving the hospital.

CASE 9. L. L. E. Nineteen year old girl. Twenty-two months before operation she began to complain of pain in the shoulders. Exercises were prescribed for nearly a year, then a plaster jacket was applied for a few months to hold the spine hyperextended, and finally a shoulder brace was fitted seven months before her surgical treatment. None of those measures relieved the pain, therefore it was decided to trim the shoulder blades although there was no crepitus, because the shoulders were obviously drooping and the symptoms had persisted. Both scapulae were trimmed and the operation wounds healed *per primum*. There was very little post-operative discomfort. The patient was discharged from the orthopedic ward in fourteen days, and continued to come to the out-patient department for nearly a year longer. She continued, however, to have pains in the neck and back that very slowly diminished under manipulation and exercises.

She returned six years and a half after her surgical treatment, and at that time had practically no pathological symptoms. No crepitus could be observed, but there was a slight tenderness at one spot on the right scapula. The brace had been discarded for four years. She thought her operation a success.

CASE 10. M. M. Parlor maid. Twenty-two years old. She came for treatment three months before her operation and had had more or less trouble in the shoulder for seven years following an injury. There had been pain in the shoulder blades for several months before admission to hospital. Tenderness and crepitus were found in the right scapula. She was treated for a month or so with strapping before the shoulder was operated on. Her convalescence was uneventful, and she was permitted to leave in fifteen days. For two months she returned to the out-patient department for further strapping and chloroform liniment, and after six years and ten months she was heard from finally. She stated then in a letter that she had completely recovered and was a trained nurse.

CASE 11. E. A. F. Woman of twenty-six years. Back ache, pain in shoulders, and leg pains at times for eight years. Before operation motions of the shoulders were guarded slightly, and scapula crepitus could be felt. The upper angles of the shoulder blades were trimmed at operation and the recovery was uneventful.

A spring steel back brace was recommended after operation. Seven months after surgical treatment there was a little tenderness still over the left scapula, but both of them moved up and down smoothly on the chest wall. She reported by letter three years and five months after her hospital experience that the operation had left no bad effects upon the shoulders, but she had not been able to re-

gain her healthy vigor and that she then was in Florida trying out of door exercise treatment. She had been obliged to give up the back brace on account of the discomfort it produced.

SUMMARY.

Six of the eleven patients operated on returned for observation and two reported by letter. Six of these eight thought they had been much benefited, one could not make up her mind, and one said she could use her arms just the same as before the surgical treatment. The three persons who had not been heard from recently, were all improved when they were seen soon after leaving the hospital. None say they are any worse, and no weakness or other objectionable after-effects that can be ascribed justly to surgery have been discovered in any of them. With regard to time for recovery, acute symptoms in all subsided by the time operation wounds healed enough to permit the patients to leave the hospital; and in three months the large majority had good function in the shoulders again. In a year's time some of the most protracted cases had been perfectly relieved.

Neurasthenic pains in arms in growing or debilitated persons were not relieved by scapula operations.

Non-operative treatments—shoulder braces, medicinal tonics and eliminants, hydrotherapy and exercises—should always be tried first for a month or more whenever circumstances permit. Many mild cases recover without surgery, and the latter should be employed only when subsequent advantages seem to overbalance the slight dangers and inconveniences of the operation itself, and when patients seem to be of suitable type. The most favorable cases are middle-aged persons in otherwise good health, and the most unfavorable combinations are found in young individuals from fourteen to eighteen years, who are nervous and debilitated.

PROGRAM AND DIRECTIONS FOR THE MENTAL EXAMINATION OF ASOCIAL, PSYCHOPATHIC, AND DOUBTFUL SUBJECTS.*

BY ROSE S. HARDWICK, BOSTON.

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FOREWORD.

THE writer is one of a group of people who are working on the problem of mental examina-

* Being Contribution of the State Board of Insanity, Number 41 (1915.7). (*Bibliographical Note.*—The previous contribution (1915.6) was by H. C. Solomon and E. S. Welles, entitled "Varieties in the Gold Sol Reaction Type in Different Locs of the Cerebrospinal Fluid System," published in the BOSTON MED. AND SURG. JOUR. April 29, 1915.)

tions at the Boston State Hospital, Psychopathic Department.

To meet the needs of that and similar institutions the Yerkes-Bridges Point Scale was developed and was put into use at the hospital in December, 1913. This, however, was not devised to be an exhaustive examination, but, rather, to serve as a preliminary, giving immediately such data as would be needed in every case, and preparing the way for a more intensive study, which could then be adapted to the requirements of the individual subject.

The writer's special problem is the organizing of these supplementary tests. The program outlined in the following pages is tentative, and is intended to be superseded later by a more complete and satisfactory treatment. Especially in the field of affectivity are the present methods of testing felt to be inadequate.

In this provisional form the program is primarily for the guidance of inexperienced examiners, though the writer hopes that it may be of service to others also.

ABBREVIATIONS.

Most of the tests to be considered are found in one or more of four series, namely, the Yerkes-Bridges Point Scale, the Binet-Simon Scale, the Healy Tests, and the Knox Scale. For convenience of reference the several tests will be denoted by the initial of the author's name followed by the number of the test in his series. Thus, B VII 3 is test number 3 of the 7-year group of the Binet-Simon Scale, and H IX is test number IX of the Healy series.

Knox, in his description of his own scale, uses Arabic numerals for both test and year, but the Binet notation is the clearer, and, therefore, has been adopted for the Knox Scale as well.

References to Whipple's Manual^{10*} are given by test numbers. Thus, W 16 is test number 16 in the Manual.

Throughout this discussion the references to the Point Scale have been made to agree with the revised form of the record sheet.

WORKING REFERENCES.

The examiner should have the following publications at hand for constant reference:

BINET, A., ET SIMON, TH. A method of measuring the development of the intelligence of young children. (Town, C. H., trans., 2d ed.) Chicago Med. Book Co., 1913.

HEALY, W., AND FERNALD, G. M. Tests for practical mental classification. Psychological Monographs, 1911, Vol. 13, whole No. 54.

KNOX, H. A. A scale, based on the work at Ellis Island, for estimating mental defect. *J. Amer. Med. Assoc.*, 1914, 62, 741-747.

WHIPPLE, G. M. Manual of mental and physical tests. Warwick and York, Baltimore, 1910.

This is now being revised and enlarged, but as yet only the first volume of the new edition has been issued (Warwick and York, 1914).

YERKES, R. M., BRIDGES, J. W., AND HARDWICK, R. S. A point scale for measuring mental ability. Warwick and York, Baltimore, 1915.

This is to be ready in the spring. Meantime a preliminary description of the Point Scale has been published as follows:

YERKES, R. M., AND BRIDGES, J. W. The Point Scale: A new method for measuring mental capacity. *Boston Med. and Surg. Jour.*, 1914, 171, 857-866.

* The reference numbers in the text refer to the "references" given at the end of the article.

METHODS OF TESTING.

THE YERKES-BRIDGES POINT SCALE.¹¹

Of the various series of tests now in use at the Psychopathic Department of the Boston State Hospital, this one alone has been developed with special reference to the needs of such an institution. Hence it forms the natural point of departure for the present discussion.

As at present constituted, this scale is especially suited to the work with pre-adolescents. It is, as the name indicates, a point scale and not an age scale. The tests are arranged in order of difficulty. Whether the subject is a child of three or an adult, the examiner begins with the first test, and gives the series entire, or until he is satisfied that the limit of that individual's mental attainment has been reached. In this way all the principal intellectual functions are tested for every subject.

The result of a point scale examination may be expressed in three ways, namely, by the score, the mental age, and the coefficient of mental ability. All three of these expressions should appear on the record sheet.

Suppose, for example, that a subject 12 years old scores 68 points. The examiner writes "68" after the phrase "total credits" at the top of the record blank. The graph shows 68 to be the norm for 11.3 years, and "11.3" is, therefore, recorded after the words "mental age." The same graph shows, also, that the norm for this subject's chronological age is 77 points. His coefficient of mental ability is, then, 68/77, or 88%. This coefficient should be entered on the same line with the score, the norm being written on the line below. For the present the mental age by the Binet Scale should be obtained for purposes of comparison, and it should be written after the Point Scale age. Thus the record for the supposed case would read as follows:—

Mental age, 11.3 years, Y; 9.8 years, B.
Total credits, 68. Coefficient, 0.88.
Norm, 77.

Detailed information as to the giving of the several Point Scale tests, and the interpretation of the results by the aid of norms will be found in the printed instructions, but it may be well to emphasize at this point the importance of the data indicated at the top of the record blank.

The date of the examination and the date of the subject's birth should be recorded exactly, and in the form 1914-10-6, rather than October 6, 1914.

After the words "examined by" the initials of the examiner are sufficient if he is making examinations regularly for a number of months, but if he is making few examinations, or only occasionally, his last name should appear in full.

The name of the subject should be given in full, and always in the same order, thus, Smith, John Henry.

Under "nationality" should be stated, if pos-

sible, the birthplaces of the subject and of his parents, and the race to which they belong, if the birthplace does not sufficiently indicate that. For example, in the case of German Jews, both race and birthplace should be given, since birthplace alone would indicate German stock, and race alone would give no clue to the early environment. It is especially important to make note of the fact if the subject or either of his parents is colored, since neither name, birthplace, nor language necessarily gives any clue to that. The more definitely the place is stated the better. For instance, "Halifax, Nova Scotia" is distinctly better than "Canada." In all doubtful cases the examiner should ascertain if the subject is accustomed to speaking or hearing any other language than English at home, and, if so, that fact should be recorded with the name of the language. The place of birth and the race do not by any means dispose of this question. A Canadian of French extraction may speak either French or English, and a Hebrew of American birth either English or Yiddish. If any language difficulty is present or suspected, that, also, should be stated distinctly. Much of this data can often be transferred directly from the "history" of the case, but this should be done before the close of the first interview in order that the examiner may inquire at once in regard to any missing items. A little experience will make it possible to record the above data with entire clearness and yet compactly. Generally recognized abbreviations should be used wherever possible without ambiguity.

Under "school grade," if the subject is still in school the mere number of the grade is sufficient. If he is not in school, the age as well as the grade at which he left should be given. If he is in a special class, the number of the grade from which he entered it should be stated.

At first this may seem an unnecessary and burdensome amount of detail. That it is not so in reality, however, becomes evident with experience.

When a subject returns, as he does not infrequently, after an interval of months or years, for a second examination, the value of the second examination must depend in no small degree on the fullness and exactness of the record from the first.

Moreover, it is only by the accumulation of such data that our present norms can be used, improved, and new ones established. Thus the facts as to language are necessary if the language norms are to be utilized, while the establishing of racial norms must wait for the gathering of just such data as are called for here. If these facts are not ascertained at the beginning of the examination there is danger that they may not be ascertained at all, or not with sufficient exactness to be useful. An item that could have been recorded in a few seconds at the time of the examination may easily cost someone a

half hour's search at a later date—and may not be forthcoming after all.

In the absence of definite information as to sociological status, it is generally safe to assume that a subject in a state institution belongs to the unfavored group, and to judge him by the corresponding norm.

The examiner is urged to follow strictly the instructions as to recording, if possible, the exact words of the responses for Nos. 7, 9, 10, 14, 15, 17, 18, 19, and 20. In the case of responses difficult to evaluate the advantage of this course is obvious. If the examination is repeated, changes in the type of response may be quite as significant as changes in the score. Finally, as will be seen, these details are essential if the Binet rating is desired.

THE BINET-SIMON SCALE.

A full discussion of the Binet tests, together with a good deal of illustrative material, will be found in Town's translation.¹ This is an authorized translation of the latest Binet revision, and should be followed except for the modifications introduced by Goddard.^{4, 6} His version is especially adapted to use in this country, and it provides a group of tests for eleven years which the 1911 revision by Binet does not. Hence we use the Goddard record sheet, and adhere as closely as possible to his rules. The necessary modifications of the Point Scale and the Binet procedure are given below.

For convenience the Binet tests will be treated here in two groups according as they are, or are not, represented on the Point Scale.

Binet tests represented on the Point Scale.

Y 1 = B VI 5. Goddard says, "Child must give all these comparisons correctly," but note that Binet shows each pair of faces only once. That is, the Binet score depends on the result of the first exposure of each pair, and no error is allowed.

Y 2 = B VII 3. No modification.

Y 3 a = B IV 4. Goddard counts two correct responses out of three a success, hence it may be necessary to give a third trial.

Y 3 b and c = B V I. No modification.

Y 4 = B IV 3, VIII 5, X 3, and XII 1. The Binet procedure allows the subject three trials on each group, and reckons one correct repetition a success. Hence, a third trial may be given when necessary.

Y 5 = B VIII 2. Binet permits one error (omission or inversion), and Goddard advises to "hold pretty strictly to time."

Y 6 = B III 2, V 3, XII 3 (?). In this test, (d) contains 24 syllables, whereas B XII 3 contains 23. Goddard says of the latter: "Sentence too hard—effort is being made to standardize one. In the present sentence credit if it contains no more errors than one omission and one transposition." Y 6 (d) should be counted in place of the Binet sentence and scored as above.

Y 7 = B III 4, VII 2 and XV 1. This is credited by Binet on the basis of the most frequent type of response. Enumeration, description, and interpretation correspond, respectively, to B III 4, VII 2, and XV 1.

Y 8 = B IX 5. As Binet counts two correct arrangements out of three a success, a third trial may be necessary.

Y 9 = B VIII 1. Goddard warns against accepting automatism or expecting *logical* answers. One point of difference for each pair is sufficient, and two correct comparisons count as a success.

Y 10 = B VI 2 and IX 2. "Spoon" and "baby" may be treated as equivalents of "fork" and "mama," respectively, but the fifth word, "table," must be given also since the Binet scores, for both VI 2 (in terms of use) and IX 2 (in terms superior to use), are based on three out of five responses. Goddard warns here against crediting automatisms.

Y 11 = B XII 4. Binet credits a success if the suggestion is resisted for two of the last three pairs of lines.

Y 12 = B V 2 and VII 4. Binet used a pen for these drawings, but Goddard prefers a pencil. Generally, drawings that receive one point credit on the Point Scale would be accepted in the Binet test. Doubtful cases must be settled by comparison with the specimen drawings given by Binet.

Y 13 = B XI 3. Less than sixty words receive no credit in the Binet test. Goddard says, "Do not credit numbers given serially, nor repeated words if they occur too frequently."

Y 14 = B X 5 and XI 2. Goddard permits the examiner to explain the meaning of "sentence," but not to illustrate. He says, "The sentence may lack sense, and yet be acceptable." For X 5 he accepts a compound sentence, but not separate sentences. For XI 2, the sentence must be either simple or complex, compound sentences being refused credit here.

Y 15 = B X 4. This makes use of only four of the eight questions in the Binet test, and enough of the remaining four must be given to allow of reckoning as a success two in the first series and three in the second. Goddard says that the "first question in the second series ought to read, 'What ought one to do if he is afraid he'll be late for school?' The only correct answer is 'hurry' or 'run,' or some expression for hastening. Second in second series ought to read, 'What ought one to do before deciding an important matter?'"

Y 16 = B X 2. Credit of three points on the Point Scale is generally equivalent to success in the Binet test. Binet counts the test as passed "when one of the designs is reproduced exactly, and half of the other is correctly drawn," and Goddard defines "half right by adding, if one component part is missing or two component parts transposed."

Y 17 = B XI 1. Binet requires three of the five responses to be correct.

Y 18 = B XI 5. Binet requires two of the three sentences to be correct, and he accepts only the following solutions:

I asked the (or my) teacher to correct my (or the) paper.

A good dog defends his master bravely, *or*, A dog defends his good master bravely.

We started at an early hour for the country, *or*, At an early hour we started for the country.

Y 19 = B XII 2. Binet credits two correct responses as a success.

Even when the above directions are carefully followed, the results are not in all cases precisely the tests described in Goddard's version of the Binet Scale. The differences are not great, and it is probable that they neutralize each other to some extent. At any rate, the resultant error is almost certainly less than would be entailed by a repetition of the tests.

Binet tests not represented on the Point Scale.

The following are Goddard's modifications of the rules for the several tests:

III 1. "Other parts of the face are harder. Do not persist to the point of annoying the child. If necessary, because of shyness, help on the first and then if he succeeds on the next two give him a fourth one. *Be sure you do not help.*"

IV 1. "Be sure there is real discrimination and not thoughtless repetition of the first or last term."

IV 2. "Other objects than those given, may be used if the examiner is sure child is familiar with them. Say, 'What is this?'"

V 5. "Give the child no suggestion, place the two triangles before him with the long legs facing each other and the hypothenuses turned away from each other."

VI 1. "As in IV 1 and 4, be sure the answer is not accidental. If in doubt, repeat question later."

VI 3. "Give clear directions—then repeat them, and after that give the child no more help. *Be sure the three commissions are not conflicting, ambiguous, or unusual.*"

VIII 3. "Child must not be given one name with which to start. May begin with any one so long as he names all in order."

VIII 4. "Be careful of stamp arrangement—111222. Say, 'You know how much a green stamp costs (illustrating with one stamp) and how much a red stamp costs (illustrating)? How much do all these cost?'"

IX 1. "Real money only must be used and change must be counted out as well as stated (except in cases where the child is obviously be-

yond this test.) Use four cents from twenty (two dimes,) or six cents from twenty-five as an alternative."

IX 4. "Do not name a month to start the child. Child may begin with any one so long as he names them all in order."

X 1. "Our question differs from Binet's, because our currency does not fit. His test involves *coins*, all of which are in use. Our *coins* above fifty cents are rarely seen by children. Therefore we show coins up to fifty-cent piece (but not in order)—these must be named correctly. Then he may name the paper money from memory. If he names 2, 3, 4, 6, 7, etc., dollar bills ask him if he ever saw a 3 and a 4, etc.; if he insists that he *has* seen them the question is given no credit, but if he merely knows there is a higher series and does not insist that he knows *from experience* that there are 3, 4 or 7 dollar bills, we credit him."

XI 4. "Always give an explanation of the meaning of rhymes and an illustration (we use "floor" as an illustration). Do not accept syllables that are not real words, although they may rhyme. Three rhymes with each of the three words are required; one minute is allowed for each series."

XII 5. "If answers are indefinite, query further to be sure whether child has correct idea or not before crediting."

Writing in 1913³, Goddard says: "'Fifteen years' and 'adult' have not proved reliable. One may try them for his own purposes, but there seems no way to score them, therefore we do not include them in the scale." Also, in the earlier article, 1911,⁴ in which he set forth this revision, he says: "We have concluded that adult 1 and 2 test special traits rather than universal, *e.g.* we found in a mixed group of educators and scientists six out of twenty succeeded with No. 1. In another group, psychologists, twelve out of eighteen succeeded." In other words, these two groups are to be treated as supplementary tests, the regular scale ending with twelve years.

In XV 2, Goddard says, "Child must not see a watch or clock. It is a test of imaging power." 11.15 and 4.30 should be accepted (W. page 487).

XV 3 is fully discussed as H XI⁷. It is convenient to lead up to it with H IX and X, a very bad failure on either of these indicating that the test has proceeded far enough. Goddard suggests "war," V J F, for illustrating the use of the code, and gives "Caught a spy" as the test sentence. Since this is not to be used as a part of the Binet Scale, the sentence given by Healy ("Come quickly") should be used, with Goddard's sentence as an alternative when the examiner wishes to give a second trial.

XV 4 should be given according to Healy's instructions (H XV), using the full list of twenty words, and recording the reaction time for each. This necessitates making it an oral

test and using a stop watch.* We accept Goddard's list of alternative responses.

"Besides the obvious answers," he says, "the following are acceptable as right or half right:—

- 2, in or indoors (half);
- 3, lazy or slowly (half);
- 4, little or low (half);
- 5, short (half);
- 6, soft or low (right), whisper (half);
- 9, sorry or sorrow (half);
- 10, right or truth (half);
- 11, dislike, unlike or hate (right);
- 13, healthy (right)
- 14, mad (right);
- 15, broad (half);
- 16, filled (right);
- 18, none (right);
- 19, under (right)."

For the "adult" tests, when given, the Binet procedure is to be followed.

When the Point Scale examination has been completed, the Goddard record blank for the corresponding Binet tests may be filled out from this, placing before the numbers of the several tests, plus signs to indicate successes, and minus signs to indicate failures.

To obtain the Binet rating the examination is continued in the following manner: The examiner looks for the first failure thus far recorded on the Binet sheet. Suppose, for instance, that it occurs at VIII 2. He will then give the remaining tests for seven years, namely, VII 1 and 5. If one or both of these is a failure, he will continue to work backward until an age is reached for which all the tests are passed. He will then reverse the process and work forward, beginning, in the supposed case, with the tests for eight years, until an age is found for which all are failures.

This last, however, is a general rule to which the examiner may safely make certain exceptions after he has acquired a little experience. Thus XII 4 is often passed by individuals otherwise distinctly below the twelve-year level. Hence, if a subject passes on XII 4, but fails on XII 1, 2 and 3 (or the corresponding Point Scale tests), it is generally safe to infer that the limit of correct performance has been reached, and that it would be a waste of time to attempt XII 5, to say nothing of the tests for fifteen years. The same thing is true in less marked degree with reference to XI 3 and XV 1.

The Binet age should be reckoned according to the later Binet rule, namely, starting from the age at which the subject passes all the tests, one fifth of a year is added for every one of the more advanced tests passed (at four years the fraction would be one-fourth).

*The stop-watch known as the "seven jewel lever chronograph" made by the Leonidas Watch Company, Switzerland, has been found satisfactory for examination work. It can be obtained from dealers in this country for about \$7.50.

URETHRAL CARUNCLE.

BY EDWARD L. YOUNG, JR., M.D., BOSTON,

From the Genito-Urinary Service, Massachusetts General Hospital.

THE records of the cases of new growth of the female urethra, going under the name of caruncle, which have been operated on at the Massachusetts General Hospital during the past twenty years, have been studied, and the symptoms, and when possible the pathological findings, classified, in order to verify and emphasize those points of importance which we have all believed to be true and to see if by chance there are other points not now emphasized which should be brought out. This series includes only the cases operated on in the house, as they have the most complete data.

Pathology. There were nineteen cases in which pathological work had been done and in which the slides were available. Dr. William F. Whitney very kindly went over these slides to verify the old reports and to see if he agreed with the general classification. The interesting thing, in fact almost startling thing, about these slides is the number of cases in which the question of malignant degeneration was raised because of the irregularity of epithelial cell growth in crypts and infoldings from the surface and of islands of epithelial cells included in the tissue. In the original reports four cases were called either definitely malignant or with an atypical epithelial growth sufficient to make the pathologist emphasize it. On going over these slides with Dr. Whitney, there was one other which he considered suspicious, though not definitely malignant. This makes five out of nineteen cases, or more than 25%, where the irregularity of cell growth raises the question of carcinomatous degeneration. There were, besides these five cases, three others with very irregularly lined epithelial surfaces. The age of the patients in these cases varied all the way from six to sixty-three years. Three of the five cases I was able to get later data on. Two of the three had no signs or symptoms, one four and one eight years afterward. The third came to the out-patient department in response to a letter. It is now six years after operation. Aside from the fact that she is somewhat run down, she is in good general condition. She has the same symptoms as before operation and examination shows a tumor surrounding the meatus about one-fourth inch in diameter in its thickest point. To the finger the whole length of the urethra feels hard, thickened and indurated. There are no palpable glands anywhere. She refuses further operative interference of any kind, though told of possible danger, for the slide from her earlier caruncle looks definitely malignant. Plates Nos. 1 and 2 give rather poorly high and low power of this.

The papillary form of redundant epithelial growth was also encountered and is illustrated

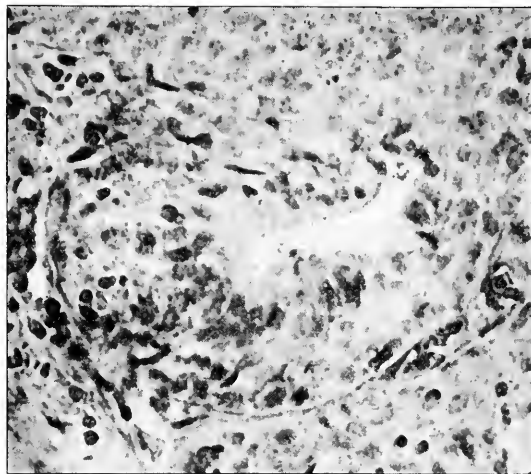


FIG. 1.

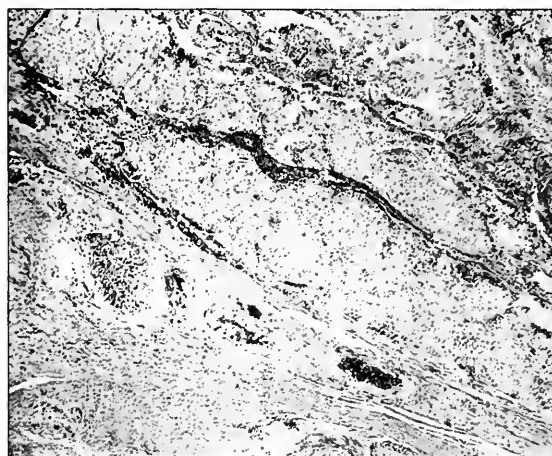


FIG. 2.

by Plate No. 3. This is an unusual type of the tumor.

The remaining cases seem to fall more or less clearly into two groups; in one the main tissue is very vascular and surmounted by a thin layer of epithelium, the angioma type, Plate No. 4. In the other it is typical granulation tissue, the granulomata, Plate No. 5. There is, of course, no hard and fast demarcation, but in general this classification covers all cases.

Symptoms. According to most of the textbooks, burning and frequency of micturition, together with great sensitiveness, are characteristic of this condition. In this series, 26 or 35% of the cases had no symptoms of any kind pointing toward the caruncle. They came for the relief of other conditions, mostly pelvic or perineal, and during the course of the examination the growth, varying in size from a "small tab of mucous membrane" to a strawberry, was discovered and later removed. The causes other than these which were responsible for sending patients to the hospitals were as follows: Twice the family physician discovered the tumor and advised operation, three times the complaint



FIG. 3.

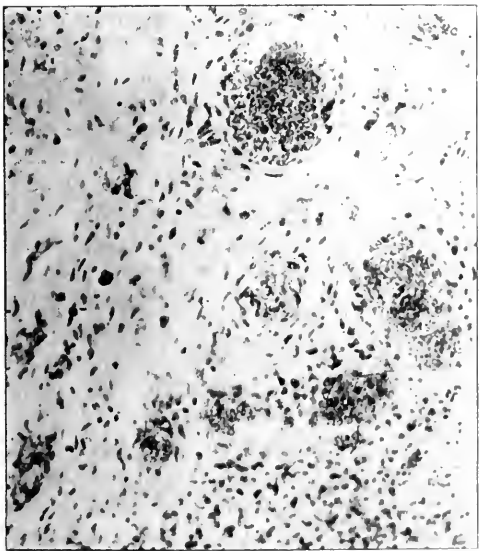


FIG. 4.

the urinary meatus; three of these were made worse on walking or standing, and two made worse and one better on micturition. This made thirty-five, or one half the cases, that had no urinary symptoms.

The half that did have bladder symptoms showed the following variation: fifteen had frequency and burning, thirteen had burning without frequency and five frequency only. Two patients had incontinence without other symptoms, but it is highly improbable whether the

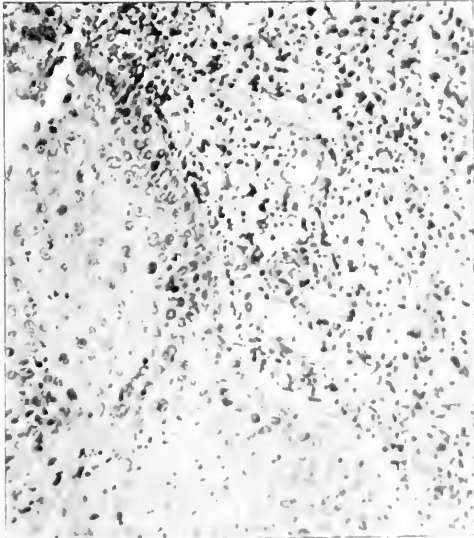


FIG. 5.

was hemorrhoids and once fissure. Twice, in patients aged six and nine, the mothers discovered the tumor and once the patient came to find the cause of painful coitus. Six patients noticed the growth because it had been removed once and they were on the lookout for a recurrence. Aside from these twenty-six symptomless cases, there were two where bleeding, independent of urination was the only symptom, and seven where the chief complaint was soreness or pain variously described as at the vulva, in the vagina or near

caruncle was the sole cause of this, although there was no later record to tell whether cure was effected or not. Six patients had had enough bleeding to lay stress on it in their story.

The duration of symptoms varied all the way from one week up to twenty-one years, but the majority dated their troubles back from three to fifteen months.

In the cases where pain or bleeding was the main complaint it seems obvious that the tumor itself, existing as an irritating foreign body, was the direct cause of the symptoms and that its removal would cure these symptoms. But in the cases where the urinary symptoms existed, it did not seem quite so clear that the tumor was of itself the sole factor. To be sure, several cases returned a year later with no recurrence and no symptoms, and it is easy to assume that the caruncle was the original cause of symptoms. But a few cases also returned where the tumor was gone but the symptoms had never been changed in any way. These cases are few in number, but a close study of all the available data fails to show good and sufficient cause for the persistence of the trouble. The urines were all clear and clean without albumen. The patients had no pelvic symptoms made out in a routine pelvic examination. The age varied, and though all were over thirty-five, none were suggestive of the old woman's irritable bladder.

Recurrence. Twenty-three patients, or practically one-third, had had various operations for the removal of similar growths before coming to the hospital; three of these had had "several," five had had two, and the rest one attempt at a permanent cure. The ages of those patients showing a recurrence varied all the way from eighteen to sixty-three years, and the evenness of the distribution over this period shows that age had nothing to do with recurrence. Nor does the type of the first operation seem to have any bearing on the result, as excision and cauterization, either with the actual cautery or with chemicals, had been used about equally. In those cases where there was a strictured urethra not remedied at the first operation, the caruncle always returned, but, other than this, no cause for recurrence could be determined. Of recurrence after leaving the hospital, no accurate data are available, but several were reported; and one recurred as cancer which was cauterized the first two times.

Age. The youngest patient was six and the oldest seventy-three years. All but thirteen were over thirty and only one over seventy. Between thirty and forty, there were fifteen; between forty and fifty, 14; between fifty and sixty, fourteen; and between sixty and seventy, fourteen cases. The age seemed to bear no relation to symptoms or to pathology. It is interesting to note that both the children had no symptoms though the growth was in both cases of good size.

One object in looking over these cases was to see how close a connection there was between

stricture and caruncle. Of the four cases of stricture of the female urethra operated on in the last twenty years, two had caruncles, and of the caruncle cases where data were given regarding the patency of the canal, only three had any narrowing of the urethra. But it is interesting to note that these five had all been operated on before and had recurred, but after the stricture was cut or dilated, four were cured and one was not heard from again. It is important then to make sure that the canal is free in order to eliminate one factor which apparently causes recurrence.

Etiology. There was nothing in this study which throws any light on the etiology of this growth. In one case only was trauma given as the starting point of the symptoms. Infection might seem to play a more or less important part in certain cases if we could assume that a form of new growth which consists of dense granulation tissue would be most likely to arise from the irritating effects of a local infection, but this is certainly not always the case, as two of the three cases where the canal was strictured, and hence where there must have been infection, showed on pathological examination definite papillomatous growths and not granulomata. Beyond this, nothing can be suggested as to cause.

Treatment. Very little need be said about treatment. Removal is the thing aimed at, and how it is done seems to make very little difference. If they are small the actual cautery disposes of them efficiently. If they are large they should be removed and the base sutured; in certain cases where they surround a large part of the circumference, the urethra should be resected and the ends sutured together to prevent later stricture. And in all cases sounds should be passed to the bladder to make sure that no narrowing of the canal is present. High frequency cauterization of these grows has been advocated and though I have had no experience with it, it would seem worth trying. Because of the possibility of malignant degeneration, it would seem wise to excise when possible and examine pathologically.

Summary. Pathological examination of these tumors show a surprisingly large percentage of cases in which the question of malignancy is raised and as there is clinical evidence to show that certain cases turn out carcinomatous later, from the evidence of this report, it would seem wise to examine all specimens when possible and watch carefully those suspicious ones.

About 50% of caruncles have no accompanying symptoms and where urinary symptoms are present a large proportion are probably not due to the growth.

Thirty-three per cent. of all cases of this series have recurred regardless of the type of operation and where a stricture has been present it has always recurred.

Clinical Department.

CUTANEOUS TUBERCULOSIS. REPORT OF A CASE OF FOLLICULIS AND ERYTHEMA INDURATUM.

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AND

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E. P. Age, 20. Born in Russia. Salesgirl—underwear.

P. H. Eight or nine years ago the patient had an operation on the left side of her neck and a gland was removed.

P. I. Three months ago she noticed "pimples" on both arms. One or two appeared at first on the upper arm and then the eruption gradually spread over both arms and hands. One month ago much the same condition appeared on the legs and has become much worse in the last two weeks. She has complained of much pain on walking and moving about, but she has been comfortable on sitting or lying down. She has felt fairly well and has slept well. Her appetite has been excellent and her bowels have been in good condition. The glands in her neck have been slightly swollen in the last couple of weeks.

P. E. On examination the girl appeared sick, walked as if with effort, and was generally untidy and dirty. Inspection showed diffusely scattered papules, often slightly tender, over the upper arms, forearms, and hands, more marked on the extensor aspects, especially of the forearms and hands. The papules were small, 2 or 3 mm. in diameter, usually acuminate, dull red, with usually a crusted top which tended to be slightly dark colored. The apex of these lesions was sometimes vesicular and often pustular. In other lesions, the dark colored, centrally adherent crust was noticeable. There was a tendency toward grouping on the backs of the hands where there were four or five pustules on the same reddish, slightly raised base, forming areas about 1 cm. in diameter. Some of the larger lesions were fairly tender and looked as if they might contain a drop or two of pus. The skin about the nail of her right forefinger was red, tense, tender, and swollen as if it were the beginning of a paronychia. There were only a few lesions on the body. Here, as well as on the arms and legs, was an amount of black material inconsistent with the proper use of soap and water. Some of the older lesions on the arms had apparently run their course, and were flat, purplish, slightly atrophic as if a small white depressed scar would be formed there after a certain length of time. Here was presented a picture in which each individual lesion from its start as a dull red papule to its termination in a more or less slightly depressed atrophic white-ridged scar had lasted apparently from six to nine weeks or thereabouts, during which time the center of such had become more or less necrotic.

The legs presented a somewhat different appearance. Numerous lesions were somewhat similar to

those on the arms but were in general a bit larger, a bit more indurated, and more tender. The calves of the legs were distinctly indurated, purplish in color over large areas, and in the center of these purple areas were large ulcers. There were four or five of these on each calf. They had apparently been neglected and were rather deep, punched out, indurated ulcers with a sluggish, dirty gray base with rather a foul discharge showing, here and there, a tiny red point. The area about these ulcers was rather tender to the touch. The ulcers were irregularly oval with sharp edges which descended rather abruptly but were not undermined. They varied from a quarter of an inch in diameter to three-quarters of an inch in diameter. The base of the ulcer was flat and, as I have said, dirty gray in color, the induration extending about them an inch and a half or two inches.

It was thought at first that the case was a pus infection and that it would clear up quickly with soap and water plus tonics and a betterment of the general condition. The condition was obstinate and gradually cleared up during several weeks' treatment, making the most progress under a general tonic treatment combined with a weak iodine solution on the arms and a chlorinated soda solution for use on the legs. The patient disappeared from the clinic, but, at the last visit, the general condition was improved, the arms showed few lesions, and the ulcers were cleaner with less discharge, though there was considerable pain on moving or walking. The lesions, with the history and progress of the condition, warranted the diagnosis of a cutaneous manifestation of tuberculosis showing itself in two forms—the so-called "Folliculitis" on arms and hands and Erythema Induratum on the legs. This diagnosis was later confirmed when the case was exhibited at the Boston Dermatological Club.

Almost yearly, for several years, newly recognized cutaneous manifestations of tuberculosis appear in print. While this paper does not deal with those of most recent date, it does have to do with forms of cutaneous tuberculosis which we believe are often unrecognized and, therefore, of sufficient interest to report.

Reports of Societies

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING OF WEDNESDAY, FEBRUARY 3, 1915, AT 8 P.M.
THE PRESIDENT, DR. JAMES C. WILSON, IN THE CHAIR.

MEYERIAN LAWS OF HEREDITY AND THEIR APPLICATION TO EUGENICS.

DR. ALFRED GORDON: Historical reference is made to Darwin's Origin of Species and to the principle

of "Natural Selection," also to Weissman who insisted on proof of the hereditary transmission of acquired characters, to the work of deVries, and to the teachings of Mendel. The fundamental principles of heredity as laid down by Mendel are considered and applied to the investigations in the domain of plants and animals. Special stress is laid on the principle of segregation of unit-characters, on their non-disappearance in subsequent generations, on their existence in a latent shape in individuals who happen to be deprived of them. Two personal observations are mentioned of polydactylism in one of which I succeeded in tracing the abnormality in four generations, and in the other case for three generations. Other abnormalities are discussed and pathological conditions all following the rules of inheritance discovered by Mendel. Reference is also made to the work of other observers regarding mental disorders in which the above laws also find their applications. Special attention is called to the proper understanding of breeding and crossing. The phenomenon of heredity is a phenomenon of individuals, controlled by precise and specific physiological laws. Measures of precaution and of prevention are mentioned. The entire problem of eugenics depends upon the fundamental knowledge of the laws of heredity.

A STUDY OF THE COMPARATIVE TOXICITY OF THE VARIOUS MERCURIAL PREPARATIONS.

BY DR. JAY FRANK SCHAMBERG, DR. JOHN A. KOLMER AND MR. R. W. RAIZIES, PH.D., (BY INVITATION.)

DR. SCHAMBERG: From our work we have reached the following conclusions:

1. Rats exhibit such variation in their resisting power to mercurial salts that too much weight should not be attached to minor differences in toxicity in the experimental findings.

2. While the maximum tolerated dose of the various salts may be widely divergent, when the doses are calculated in the terms of pure mercury, they fall within relatively narrow limits.

3. In general terms, it may be stated that the toxicity of the various mercurial salts is directly proportionate to the amount of pure mercury contained.

4. The inorganic salts, as represented by the bichloride of mercury, are no more toxic than the numerous organic combinations that are commonly employed.

5. The differences in the molecular structure of the mercury compounds tested by us were found to be of relatively little importance as affecting their toxicity.

6. The bichloride of mercury was fatal on the average in intravenous doses above two milligrams per kilo of body weight; administered intramuscularly it was fatal on the average above six mg. per kilo. of body weight.

7. The average relationship as to the toxicity between the intravenous and intramuscular administration of mercury was 4:1.

8. The insoluble preparations such as gray oil, calomel and the salicylate of mercury are absorbed at the rate of a little over 1% of the injected amount per day.

9. Even at the end of six or seven weeks, almost 50% of the mercury of insoluble preparations may be unabsorbed at the site of the injection.

10. The injection of the usual doses of insoluble mercurial compounds at weekly intervals, must invariably lead to accumulation of the drug in the tissues.

11. Insoluble mercurial injections should be given only by the skilled physician after careful consideration of the dose and of the intervals of administration.

12. Mercury has a great affinity for the cells of the kidney and this organ is one of the earliest involved in mercurial intoxication. Hence during the intensive treatment with mercury the necessity of careful examination of the urine from time to time should be emphasized.

DISCUSSION.

DR. H. A. HARE: I think the gentlemen presenting this subject have rendered a distinct service, not only by this contribution of original work, but in calling attention to a fact which those of us who have had our attention centered upon this matter have long recognized and which has not been generally recognized by medical men, namely: that mercurials are dangerous in the acute and subacute types of nephritis, to such an extent that for a goodly number of years I have always, before administering mercurials, except possibly small doses of calomel, followed the dosage by salines, sweeping them out. I have always had the urine examined microscopically and if red blood cells were present or there was the slightest evidence of acute lesions in any part of the kidney, I put mercury aside with even greater rigor than I would put arsenic aside if some such combination of drugs had been suggested for the case. This point was particularly impressed upon my mind by a case of syphilitic nephritis, due to virulent syphilitic infection, in which the patient suffered from hematuria and in which the history was that on three occasions when given mercurial injections the hematuria greatly increased and the man suffered great pain over the kidneys. The so-called cumulative effect of mercury, I think also does not receive the attention it should. In view of the exceedingly slow progress of its elimination from the body proportionate caution should be observed in its employment.

DR. ROBERT N. WILLSON: It may be of interest to cite two cases of uremia occurring in the wards of the Philadelphia General Hospital, both of chronic intestinal nephritis, and both resulting from the administration of about two grains of calomel. One died in uremia. The other recovered from a fully developed state of uremia. I have also studied with interest a third case, one of pericarditis in a young colored boy who received by error 64 grains of calomel within three days. That boy also died, and microscopic sections of his kidneys showed the typical *verkalkte Niere* of the Germans, very much the same condition as that seen in the kidneys of the rats shown by Dr. Kolmer. I have a large number of specimens made in Vienna from the kidneys of patients treated in the luetic wards with mercury, all of which show the same type of kidney. During the last two or three weeks I had the privilege of seeing with Dr. Jump a young woman who presented a curious combination of cardiac and neurasthenic symptoms, but whose apparently normal kidneys functionated perfectly as far as we could determine. Shortly after the ad-

ministration of a small dose of calomel she vomited, the urinary flow ceased, she went into uremia and died. This is the fourth case which I have personally studied inside of a brief period poisoned by small doses of calomel. These occurrences have an especial interest in the light of a statement made to me recently by an old lady who grew up in the South, to the effect that in her young days she was frequently given a teaspoonful of calomel as a dose; and that it was not an infrequent thing for the physicians to prescribe even larger doses of the drug.

DR. DAVID RISEMAN: I should like to ask Dr. Schamberg whether a soluble preparation injected into the tissues does not become an insoluble preparation. I am glad he has called our attention to the over-use of mercury in nephritic cases.

DR. JAMES M. ANDERS: I should like to ask Dr. Schamberg whether he can recommend any special preparation of mercury for hypodermic use. I understand him to say that the salicylate belongs to the insoluble group of mercurial salts. This is the preparation I have been in the habit of employing hypodermically with, as I have reason to believe, excellent results, although in some cases inunctions have given even better results. I would also ask him what would be the proper interval between the injections in view of the cumulative effects of the drug.

DR. SCHAMBERG, closing: The injection of a soluble salt of mercury into the tissues would, as Dr. Riesman suggests, doubtless lead to the formation of an insoluble compound; but this must be more or less rapidly reconverted into a soluble combination, else it could not be carried through the blood stream, influence the tissues therapeutically, and be eliminated through the kidneys. It must in the end become soluble, no matter what the primary local change is. I believe that inunctions constitute the safest method of employing mercury in massive doses. Professor Welanders of Stockholm claims that much of the effect of mercurial inunctions is due to absorption of the mercury by the lungs, that there is a volatilization from the skin, with inspiration through the respiratory tract. Regarding Dr. Anders' inquiry of the best preparation of mercury to be employed for injection, I may say that the conclusions which we have given do not necessarily apply to the human subject. I think insoluble mercury compounds ought never to be injected oftener than once a week. If the dose is large, not oftener than every two weeks. Careful examination of the urine should be made from time to time in patients who are receiving mercury. In rabbits that received daily intramuscular injections of mercury over a period of 48 days, the kidneys showed microscopic pathological changes after autopsy, although during life albumen was only irregularly present in the urine. I think the medical profession is not sufficiently awake to the fact that mercury is a powerful kidney irritant. The two organs for which mercury has the greatest selective affinity are the liver and kidneys. This is not necessarily because it is eliminated through these organs, but because it is powerfully renotropic. I recall a patient whom I saw with Dr. John W. Swan some years ago, who received at the hands of another physician mercury by inunction, by injection and by mouth at the same time for a supposed luetic eruption. She developed a severe nephritis with anasarca and Dr. Swan who analyzed her

urine daily found that she continued to eliminate the drug for 127 days after the last dose of mercury had been ingested.

REPORT AND ILLUSTRATION OF A REMARKABLE CASE OF HOUR-GLASS STOMACH.

By DR. H. A. HARE AND DR. J. CHAMBERS DaCOSTA.

DR. HARE: Dr. DaCosta expected to present the operative details in connection with this case, but he is unable to be here. My name is connected with the case largely out of courtesy because the patient was under my care. The patient was a man of about 48 or 50 years of age, who suffered from severe pain in the upper zone of the abdomen. The diagnosis was obscure upon whether the condition was a malignant growth or ulcer. The x-ray photograph produced this very extraordinary manifestation of hour-glass stomach. It is difficult to conceive of a deformity greater than the one shown which could be produced by disease. The points which Dr. DaCosta expected to discuss were those of the proper surgical procedure in a case of this kind. As a matter of fact he ignored the extravasation except to close the perforation. He ignored the fibrous band between the upper and lower parts of the stomach by anastomosis. The man died three or four days following operation from pneumonia at the base of the lung on the side of operation. The x-ray picture is such an unusual one of an hour-glass stomach that we thought the case worthy of presentation to the College. I regret that Dr. DaCosta is not here to discuss the problems in surgery which he wished to bring before the Fellows of the College.

PHYSIOLOGICAL CHARACTERISTICS IN INSANITY.—THE THYMUS AND THE PITUITARY IN DEMENTIA PRÆCOX.

DR. S. D. W. LUDLUM: In a group of cases of dementia præcox Abderhalden reactions were obtained, in some cases to testicle and pancreas, in others to testes and thyroid, while in others no reactions were obtained.

In the individuals who gave the reaction to testes and pancreas the following physiological symptoms were observed: Leukopenia in exacerbations, leukocytosis in improvement, increased blood pressure, pulse feeble and rapid, temperature, two degrees above, exaggerated knee jerks, diminished cutaneous reflexes, increased electric reactions of muscle, tremor of tongue and extremities, increased weight, later loss of appetite, Westphal's Pilez pupillary sign, nutritional variations, temporary spastic legs, increased mechanical irritability of muscles. These symptoms are comparable to those obtained in animals after thymus-ectomy. In the schemata of interrelationships of glands to internal secretions the over-activity to testes and pancreas is consistent with underactivity of thymus; also the thymus of a dog whose thymus had been removed gave positive Abderhalden reactions to testes and pancreas. Several cases of this type cured with thymus extract. The majority of those cases which gave no Abderhalden reaction had the physiological and morphological characteristics of dyspituitarism and improved with pituitary extract. Those cases giving the reaction to testes and thyroid were of the catatonic type. In addition to these forms there is a hyper-pituitary mental disturbance which has its prototype in a mentally retarded girl of five years who has the stature of eight years of age. Her serum reacts only to the pituitary gland and she

represents the beginning of gigantism. The prototype is followed by cases in adults who exhibited unusually large skeleton growths and reversal of sexual characteristics with the mental symptoms of hypomania. The treatment of these cases can be successfully carried out if the case is sufficiently studied.



CLINICAL CONFERENCE OF THE NEUROLOGICAL INSTITUTE, NEW YORK.

REGULAR MEETING FEBRUARY 25, 1915.

J. RAMSAY HUNT, M.D., in the chair.

HYPOPHYSECTOMY WITH ACROMIKRIA.

DR. WALTER TIMME presented from the Third Division a case of hypopituitarism with akromikria. The patient was an unmarried woman 34 years of age who began eight years ago to have pain in the right leg. This gradually became worse, involving successively the other leg and both arms, so that eventually she became unable to move about and finally took to her bed. During the same interval the various joints became swollen and their range of mobility gradually lessened to such an extent that she could flex the knee-joint only sufficiently to lift the knees from the bed about three inches. Both ankle joints were similarly affected, as were the wrists,—and to a limited degree, the elbows. During this entire time she had been treated at various hospitals and by various methods, including massage, baking and hydrotherapy, and thymus gland had also been administered. Occasionally there had been temporary improvement, but no definite turn for the better. She entered the Neurological Institute some three weeks ago in the condition described above. Upon closer inspection and investigation, it was found that, not only were the joints tender and much swollen, but both feet and hands were small in undue proportion to her size. The fingers tapered rapidly, resembling spindles. Other abnormalities of bony growth were seen in the prognathous upper jaw, the retreating chin, and the closeness and crowding out of line of the teeth. Furthermore, she gave a history of diabetes in the mother and an inordinate desire for sweets in herself. She had polyuria and polydipsia, but no glucose appeared in the urine. Her skin had a glossy appearance, and while not truly edematous, as it did not pit on pressure, yet there seemed to be some infiltration of the subcutaneous tissues which did not rob them of their elasticity. Her menses were normal and her internal organs seemed sound. Her blood pressure was 140 mm. X-ray plates of the joints showed changes in the bony structure resembling osteoarthritis, also in the structural lines of the bony tissue, indicating some rarefaction. These features, especially the smallness of the hands and feet—acromikria, placed the case indubitably in the hypopituitary class. Whether the original etiological factor was an hereditary one—diabetes in the mother—or whether in adolescence an over-developing ovary was concomitant with a non-developing pituitary gland giving rise to the patient's senility, can hardly be established. After a few weeks of treatment with graduated doses of whole gland substance together with small doses of

thyroid gland, the patient gradually improved until she was able, with assistance, to stand on the floor and to walk some few steps. She was able to flex both knees, so that she could lift them almost a foot from the bed in the prone position, and was also able to flex and extend her feet to a limited extent. The swelling had largely left the joints, with the exception of the left ankle, the pain had almost gone, and she felt extremely hopeful and gratified. In such cases the prognosis for a permanently good result in so far as locomotion is concerned, is only fair. The changes in the joints and bones at this time of life are rarely to be overcome to any great extent by any means known to us. The swelling and pain are relieved usually and some degree of motion restored, but the patient remains more or less helpless. Organo-therapy offers the best means of combating the condition, the difficulty being to find the original gland at fault, and not simply the apparent one. If this cannot be done, the improvement is very slow and relapses occur.

A CASE OF KORSAKOW'S SYNDROME WITH CEREBRAL SYPHILIS.

DR. H. K. MARKS presented from the First Division a clerk, 30 years old, who had contracted syphilis in 1909; otherwise his past history is negative. He has taken no alcohol or drugs.

For three months following the appearance of the chancre he was treated with mercury internally and by inunctions, later by salvarsan and with mercury intramuscularly.

His present illness dates from the summer of 1914, when he experienced a sensation of numbness and coldness involving the entire left side of the body. There was no impairment of motor power, and his reflexes are said to have been unaffected. He was put on mercurial inunctions and injections and increasing doses of potassium iodide. After a couple of months he felt quite normal again.

Beginning the second and third weeks of December, 1914, he began to complain of persistent headache, dizziness, slight impairment of memory. On Dec. 25 he is said to have been quite ill with headache of unusual severity, occasional twitching of the trunk and vomiting. On Jan. 12, 1915 he was forced to quit work. Two days later it was noticed that his mouth turned to the right when laughing and that his left arm and leg were slightly weak.

On Jan. 18 he was admitted to the Neurological Institute. Physical examination gave the following positive data: Pupils moderately dilated, slightly irregular, reacting to light through a small range, but well to accommodation. The tongue was slightly tremulous; there was slight unsteadiness of the outstretched hands; a positive Hoffman sign on the left; a somewhat exaggerated ankle jerk and extensor tendency of the great toe on the left side. Otherwise the physical examination was quite negative. The remaining reflexes, superficial and deep, were active, not exaggerated, and equal right and left. Lumbar puncture revealed a positive Wassermann reaction, globulin in excess, and 30 cells. The serum Wassermann was negative. The evening of Jan. 22, the patient suddenly developed a right hemiplegia. When examined the following morning he was found to be aphasic; the right pupil and the lid aperture of the right eye were larger than the left; the pupils reacted well to light and accommodation; right mouth facial weakness existed; the tongue, however, was protruded straight.

The right arm was completely paralyzed, already slightly hypertonic. The arm reflexes, right and left, were now brisk, though greater on the left. The Hoffman sign, marked on the left, was suggested on the right. Pronounced rigidity of the abdominal wall existed, and the reflexes, epigastric and abdominal, could not be obtained.

The right leg was paretic. Partial range of motion remained. The tone was flaccid. The deep reflexes, right and left, were exaggerated, but here, too, were somewhat greater on the left. Well marked clonus existed on the left. A suggestion of clonus on the right. Typical Babinski was present right and left. The patient coöperated well during examination, apparently hearing and understanding everything.

Since this date there has been no further accident, the whole tendency has been toward gradual improvement.

We have, then, the history of a young man who, five years after infection, despite vigorous anti-syphilitic treatment, develops symptoms referable to cerebral involvement, *i.e.* headache, dizziness, vomiting, blunting of memory, sensory and motor hemiplegia. The case up to this point presents little or nothing out of the ordinary.

A more unusual condition, however, is revealed by an inquiry into his mental condition. We have already mentioned a general blunting of memory, first observed by the patient and his friends in December, 1914. On Jan. 15 he surprised his family by asking for his dead father, whom he thought living. Believed people had been to see him who had not, that his brother was still living at home. He recognized everybody and spoke intelligently when questioned.

Two days later he appeared slightly expansive, said that he had three fountain pens, that he had secured several positions for a relative on the stage. His discourse was otherwise intelligent and according to fact. A couple of days later he asked for various articles of clothing which he had bought "just the other day," articles which were not new.

According to a friend who had observed him closely, his memory for past events was excellent but poor for current events, his discourse intelligent, speech not thick. He recognized people, pictures, objects. He was able to read correctly a few newspaper headings shown him and enjoyed jokes.

A study of his mental condition revealed during his first four days in the hospital, that is, up to the time of the stroke, Jan. 22, the following:—

First of all and most striking was a disturbance of what the Germans term *Merkfähigkeit*. He was quite conscious, he was able to understand perfectly everything that was said to him. His emotional response and general coöperation were good, his memory for past events without serious defect. Yet there appeared a definite disturbance in his ability to gather together new impressions or experiences, and to acquire a sequential picture of them. On the morning following his entrance to the institute he had already been there four days, he made the acquaintance of the doctor for the first time, though he had seen him twice before. He did not remember whether he had had his breakfast, or again, what he had eaten for breakfast. On another occasion the doctor was the masseur who treated him every other day. He had been moved in from another ward, etc., etc.

Associated with this was a disturbance of orien-

tation as to time and place. He had been in the hospital 24 hours, 4 days, 8 weeks; the month is February, 1915; November, 1914; January, 1916; he was taken ill in November, 1915. When his attention was called to these discrepancies he more frequently recognized them than not and made the remark that something must be wrong. The Neurological Institute is the Polyclinic, the Presbyterian Hospital, the Garcia Hospital (a man named Garcia occupied the adjoining bed).

On a number of occasions he indulged in pseudo-remiscences or placed actual events in a false time relationship with the conviction of reality. Two days after entering the hospital he had dropped in to visit his physician the night before; then he had gone home and written a letter to the single tax party; he had been to see a friend the night before who had gone to a dance; he had just arrived this morning (he had been in the hospital a week). The experience would usually be related in a general way, and when the patient was pinned down he had a response to the smallest detail. Frequently, when confabulation was not spontaneous it might be induced.

The same applied to certain auditory and olfactory hallucinations which could be induced during the first few days of the stay in the hospital. When it was suggested that there was a flower in his hands he smelt the odor of roses or violets. When suggested that the tick of a watch was the buzzing of an insect, he described the insect. For two or three days following the stroke, Jan. 22, no confabulating tendency could be discovered. He appeared also clear in orientation and in time references.

At present his mental disturbance no longer has the sharpness of its earlier outline. He is oriented as to place, has a fair grip on current impressions and no pseudo-remiscence can be induced. Time relationships are, however, still greatly affected.

Taking these mental impressions as a whole, then—the disturbance and the ability to retain or arrange new impressions, a greater or less regressive amnesia, a disturbance in orientation for time and place, a tendency toward confabulation—we see that we have a syndrome conforming in outline to the Korsakow symptom-complex. The condition, though not rare in syphilitic mental disorders, is still unusual enough to justify calling your attention to the case.

A CASE OF PITUITARY TUMOR.

DR. FOSTER KENNEDY presented, from the Second Division, a man aged 50, who was admitted to the hospital complaining of difficulty in vision, and pains in his legs with occasional headache. He is married and has seven children. No history of lues. Is a man 6 feet 1 inch, with large skeleton. Two and one-half years ago he began to complain of irregular aches and pains about his hips and in his legs. These were worse at night and were not constant. He has been treated for sciatica because of them. About the same time he began to have difficulty in seeing small print. He felt "as though there were a veil over his eyes." The onset of this was gradual over a period of about two months, but since then he has noticed no change for the worse. He has had occasional frontal and parietal headache for the past six months. He has noticed no change in his sexual power or desire. He is generally weak but thinks that this is the result of lack of exercise. His pupils are normal. The optic

disks show a slight pallor and there is a well marked bitemporal hemiachromatopsia with a small defect of similar character for form. His cranial nerves are otherwise normal, and beyond an inability to obtain the ankle jerks there do not seem to be any abnormal neurological signs. A test of 250 grs. of leviculose failed to produce any glycosuria. X-ray examination of the skull shows marked loss of the outline of the sella turcica, which was very much broadened and shallow. His cerebrospinal fluid is normal. Wassermann reaction in blood is negative. A diagnosis has been made of tumor of the pituitary body. The question of whether or not to perform a decompression operation of the sella turcica is broached, but it is the opinion of the staff, that unless very definite signs of progression appear and considerable advance takes place in his symptomatology, it would be inadvisable to operate at this time. Experimentation towards discovering if posterior lobe feeding will produce changes in his bitemporal hemianopia goes forward.

Book Reviews.

The Pocket Formulary for the Treatment of Disease in Children. By LUDWIG FREYBERGER, J.P., M.D. (Vienna), M.R.C.P. (Lond.), M.R.C.S. (Eng.). New York: Rebman Company. 1914.

This fourth revised and enlarged edition makes again available a convenient pocket formulary which had, for some time, been out of print. It is adapted to the British pharmacopeia and is intended to afford concise and convenient information on the treatment of diseases of children by drugs. The text is alphabetically arranged and adapted to the British pharmacopeia. An appendix contains a table of poisons with their symptoms and treatment. References are also here included to von Pirquet's test and the tuberculin treatment for tuberculosis. This manual is naturally of greater value to British than to American practitioners.

Laboratory Manual for the Detection of Poisons and Powerful Drugs. By DR. WILLIAM AUTENRIETH, Professor in the University of Freiburg, i. B. Authorized translation of the completely revised fourth German edition by WILLIAM H. WARREN, Ph.D., Professor of Chemistry in Wheaton College. With 25 illustrations. Philadelphia: P. Blakiston's Son and Company.

The work of Autenrieth has been so long a standard in forensic chemistry that we welcome its introduction to the English speaking world in this translation. The work is well done and many shrewd comments by the translator make it even more valuable than the original. There is an absolute absence of circumlocution, and the simplicity of the language employed brings

every statement home to the seeker for information.

The Stas-Otto method for the isolation of organic, non-volatile poisons is employed, rather than the more cumbersome one of Dragendorff, and the newer medicinal agents, phenacetin, veronal, etc., are included in the scheme. Too much stress is laid on the methods of isolating minute, almost infinitesimal quantities of arsenic, for, though the translator insists that there is no such thing as normal arsenic in the body, yet Emerson was obliged to go outside of our city to find individuals whose urine would not show a trace of this poison by the very delicate method which he employed, and coarser and less searching means are more suited to toxicological examinations for forensic purposes. Attention is called to Lloyd's reaction, the similarity of hydrastin and morphine together to strychnine when treated with sulphuric acid and potassium bichromate, which Lloyd made the motive of his novel, "Stringtown on the Pike." Ptomaines, those bugbears to the inexperienced toxicologist, particularly when working with decayed material, are treated very briefly and dismissed with the assurance that they are easily distinguished from the alkaloids which they so closely resemble, without giving more than superficially the reasons for this assurance. There is also an excellent description of the quantitative estimation of alkaloids in crude drugs and their preparations.

An Introduction to the Study of the Endocrine Glands and Internal Secretions. By SIR EDWARD SCHÄFER, Regius Professor of Physiology in the University of Edinburgh. California: Leland Stanford University. 1914.

This monograph, the eighteenth in the series of Stanford University Publications, represents the author's five Lane medical lectures at the University in 1913. One of the earliest monographs on endocrinology was that in French by Dr. Naamé, which was reviewed in the issue of the JOURNAL for May 15, 1913 (Vol. clxviii, page 735). Dr. Schäfer's work, besides placing the data of internal secretion within easy access to English readers, rests on a fundamental experimental basis, while that of Naamé is empirically therapeutic. The five lectures deal respectively with general considerations, the functions of the thyroid apparatus, the functions of the adrenal apparatus, the pituitary body, and the internal secretions of the pineal gland and other of the endocrine glands. It is becoming an axiom of physiology that we are physically and intellectually what we are made by our internal secretions. It remains for therapeutics to continue what has already so brilliantly been begun in the domain of the thyroid, and apply the treatment of functional and organic disorders of the endocrine glands to the correction and relief of the disturbances which they produce.

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THE WORK OF THE PUBLIC HEALTH COUNCIL OF NEW YORK STATE.

In our issue for April 29 reference was made to the value of the organization in New York of a public health council to coöperate with the state department of health. Since then there has been published the first report to the governor of this council, presenting an account of its work from its creation in 1913 to December 31, 1914. After prescribing the qualifications for directors of divisions, for sanitary supervisors, and for public health nurses, the council recommended that the position of sanitary supervisor should be placed under civil service rules and presented a list of experts from which the civil service commission might select special examiners to assist in the examination of candidates. The commission selected Professors C. E. Winslow and W. H. Park of New York City. The examinations were held, and the names of

the eligible men were announced in April, 1914. The council next turned its attention to framing a new sanitary code for the state, and for several months was engaged in this important work, at its stated meetings and at frequent informal meetings of sub-committees, as well as on the part of individual members to whom were assigned special subjects for study and report. In the preparation of this code it was the constant aim to secure to the citizens of the state all the advantages which science and experience, especially during the last quarter of a century, have offered in the prevention of disease, and in the promotion of the common welfare, with the least interference with the business, comfort and convenience of the people concerned. It was necessary that its new provisions should not conflict with, but be adapted to and supplement, the various provisions of the public health law already in force, not only in the health, but in other executive departments of the state. The council, furthermore, sought to eliminate from the state sanitary code—and this was especially necessary in the chapter dealing with communicable diseases—the useless sanitary procedures which mark the views and practices of an earlier day, now replaced by exact knowledge; and to abandon, in its text, those technical terms which, though still often employed, have lost their former meanings and values, as well as those which are not readily comprehensible by the citizens for whose use and guidance the code is framed. Thus the hope is entertained that this new sanitary code will prove to be effective, intelligible, and not unduly rigorous in view of the large advantage to all which the adoption and enforcement of a modern scientific code promise.

In the chapter on communicable diseases the requirements as to the prevention of the spread of disease and the suppression of epidemics sum up, it is believed, the practical achievements of many years of scientific discovery and experience by certain precautions and regulations, which center in intelligent cleanliness. The older and most of the existing sanitary codes have much to say about quarantine and disinfection, while this code concentrates attention on the care of waste material from sick persons, and others who harbor disease germs, and the proper modes of simple cleanliness, which protect the well and render quarantine and elaborate disinfection, with their attendant expense and annoyance, largely unnecessary. In preparing the chapter on milk and cream it was

the aim to make the requirements in regard to the grading of milk not inconsistent with the regulations of the New York City code, and an exhaustive examination was made of the provisions of that code and of those of various other municipalities throughout the country. Furthermore, to make the study of the subject as comprehensive as possible, a public hearing was held in Albany, to which leading representatives of the producers, dealers and consumers were invited. All milk is required to be graded according to the score of the dairy, and it was the sense of the council that to obtain the best results in the production and handling of milk, discretion, tact and good judgment, especially in the beginning, should be exercised by the local health officer in the scoring of dairies. It is believed that, by this procedure, not only may the milk supplies of the state be safeguarded, but also the interests of the farmer, through such adequate pecuniary returns to him as the improvement in the quality of his product may justify.

In regard to the chapter on labor camps, it is stated that the existence throughout the state, especially at certain seasons of the year, of a large number of labor and construction camps creates a peculiar and difficult factor in the health work of the commonwealth; but the opinion is expressed that the camp regulations which have been formulated will serve, without imposing undue burdens upon private campers or those responsible for labor or construction camps, to protect the citizens against certain pollutions of water supplies and serious nuisances, heretofore not infrequent. The question of the suppression of nuisances has often been the bane of the local health officer's administration. The council believes that this is largely due to doubt on the part of local health authorities as to their duties and powers under the law, and that when the machinery provided by a chapter of the code which is devoted to nuisances is put into effect it will be the means of affording much needed relief to a very large number of the population. The last chapter thus far enacted is entitled "Miscellaneous," and it includes regulations, similar to those in force in the more enlightened states and cities of the country, relating to spitting, the common drinking cup and towel, and barber shops.

In the concluding portion of the report it is stated that one of the most important subjects at present engaging the attention of the council

is the fixing of qualifications of local health officers hereafter to be appointed. It is felt that this matter goes to the very root of effective health administration in the state, since the share of the individual citizen in the beneficent achievements of sanitary science and preventive medicine, and the direct advantage to him of a modern, effective public health administration, depend, in the end, upon the capacity, training, experience and devotion to the service of his local health officer. Owing, however, to the existing lack of facilities for the training of the health officer and to the comparative smallness of the salary—in view of the amount of labor involved in an efficient performance of the duties of the post—the impracticability is realized of adopting at present as high a standard as is desirable. It is the belief of the council that the solution of this pressing problem involves the education of physicians and others in modern preventive medicine by the creation of a school of young men interested in public health, who would form a source of supply of health officers. As a large number of trained health officers became available, it would be practicable to raise from time to time the prescribed standards. To attract efficient young men to this important public service it would, of course, be necessary to afford them attractive opportunity and adequate compensation.

In connection with this report a paper on "Organizing a Community for Public Health," by Professor Winslow, director of the division of publicity and education of the state department of health, which is also publishing *Health News*, is of great interest. The city or village or town, he says, is the place where the public health campaign must ultimately be fought and won, and it seems to many observers of the situation that correlation and coördination of local health activities is one of the most pressing needs. If there were a central health council in each community representing all these activities, it might serve as a valuable board of strategy for utilizing the various health forces to the best advantage. Such a council would, of course, have no power to control the action of agencies already in existence, but its meetings would serve as a clearing house for information as to over-lapping and to unfilled needs. It would give to all its constituent organizations a better view of their work in relation to the whole problem, and the council, once formed, would be in a position to plan new health activities intelli-

gently and to bring an organized force of public opinion to bear for securing funds from either public or private sources. The representative men and women composing such a council would naturally become members of the American Public Health Association, so as to keep in touch with current progress in the health movement as a whole, and, with the advice of the local health officer and the state sanitary supervisor, they could determine what particular health need was most urgent in the community. In each instance public attention could be focused on this one end until it was attained.

THE PRODUCTION OF EMINENT MEN.

IN the issue of the JOURNAL for January 28, in an editorial on "The Biologic Aspects of Early Marriage," we commented on the theories of Mr. Caspar L. Redfield of Chicago, as outlined in his paper in the *Journal of Heredity* for July, 1914. In the issue of the JOURNAL for March 11, we commented further on Mr. Redfield's position and on some of the objections against it brought forward by Professor R. H. Johnson of Pittsburg, Pa. In a recently published pamphlet on "Great Men and How They are Produced," Mr. Redfield continues this discussion and in support of his contentions publishes a list of partial pedigrees of 571 eminent men. In 222 of these cases the pedigrees are extended for two or more generations. In every instance there is affixed to the pedigree a figure denoting the birthrank of the individual, by which is meant the father's age at the time of the son's birth. There are 860 individual birthranks included in this list and they average 40.7 years, tending to indicate, in so far as such statistics are to be regarded as significant, that the majority of eminent men are born of fathers of the age of 40. The distribution of 1800 children in the age periods of their fathers is indicated in a numerical table, and another similar table presents the ratio of normal births and births of eminent men to fathers in the various age periods. This distribution of births for ordinary men and for eminent men leads to a consideration of the chances of any given individual for becoming eminent, which, Mr. Redfield concludes, vary almost directly with the age of the father at the time of the child's birth. In conclusion Mr. Redfield summarizes his position in the two following statements: 1. Rapid

breeding inevitably and necessarily leads to the production of inferior stock, no matter what the original stock may be. 2. Slow breeding is an essential to the production of superior stock and, when properly used, inferior stock can be transformed into superior stock in about one hundred years and into eminent men in less than two hundred years.

It would seem that Mr. Redfield's conclusions are somewhat too sweeping, or rather, that he perhaps misinterprets the meaning of his data. It would seem more probable that the increased intellectual capacity and consequent eminence of the children of older parents is due rather to the improved environment made possible by the devotion of earlier years to the acquisition of more favorable material conditions than to any actual improvement of stock due to slower breeding. Moreover, as we have said in a previous editorial comment upon the question of early marriages, what is really desirable is not the production of the largest number of individuals of intellectual or other eminence, but of a community with a minimum of defectives and a maximum of physically and intellectually wholesome individuals of the most durable and most highly potential stock. Probably natural process can be trusted to produce the world's quota of eminent men, as it has always done in the past. What is much more important from the point of view of constructive eugenics, is to check the production and prevent the ultimate dominance of inferior stocks by measures which may lead to their ultimate eradication.

ANTITUBERCULOSIS WORK AMONG INFANTS.—

ON May 1 was inaugurated at the Preventorium for Children at Farmingdale, N. J., an extension to take care of infants suffering from tuberculosis. There are here at present 12 infants under the age of one year whose mothers have consented to leave them under care for at least a year. This action was brought about by the need of providing for the treatment of infants suffering from tuberculosis for whom no provision is made in the various institutions for sufferers from this disease. There are 200 children between the ages of four and 14 at the Preventorium in Farmingdale. An investigation of the homes of these children revealed the fact that forty infants were infected with the disease, in many cases being cared for by tuberculous mothers. It is expected that this addition to the hospital will prove its worth as an important part of the comprehensive campaign against tuberculosis.

THE NATURE OF STUTTERING.

THE nature of stuttering is a question which has been a constant source of interest for the physician who has been called upon to treat or to give advice concerning these cases. It is, therefore, not out of place to present some of the modern tendencies or standpoints in this connection. Many new books on this subject are making their appearance. The boards of education in various cities are attacking this problem with greater persistence and increased hopefulness. The propagation of the modern conception, such, for instance, as is to be had from the survey of such a paper as that of John Madison Fletcher entitled "An Experimental Study of Stuttering" in the *American Journal of Psychology*, Vol. xxv, is, it is plain, highly desirable, if not absolutely necessary.

The conclusions of this work shall here be presented. It is agreed that the motor manifestations of stuttering consists of asynergies in the functioning of the three musculatures of speech, namely, breathing, vocalization and articulation. Certain accessory movements, which become stereotyped in each person and which are associated with these asynergic manifestations, consist of clonic and tonic states of other muscles not affected in normal speech. Since it is found that there is a great variation in the type of asynergy and accessory movements in individual stutterers, we must conclude that there is no special type of breathing, articulation or vocalization which is definitely characteristic of stuttering. Disturbances of pulse-rate, blood distribution and psychogalvanic variations, appearing before, during and following the speaking period, and varying in intensity with the severity of the stuttering, accompany the motor disorder in stuttering.

It is found, however, that the essential condition taking part in the origin of stuttering is a complex state of mind, in which such inhibiting and depressing feeling as fear, anxiety, dread, shame or embarrassment play a dominant rôle. These mental states are probably both cause and effect—a veritable vicious circle thus being established.

Furthermore, the nervous state found in many stutterers is probably the effect rather than the cause of the condition. Mental attitudes and moods, the quality of mental imagery, attention and association come in for consideration in

addition to the states of feeling mentioned above.

In brief, as Fletcher states, it is "the affective and emotional experiences associated with the pronunciation of sounds, rather than the nature of the sounds themselves" which determines the rise of the stuttering.

In conclusion, then, it must be said that since stuttering is really dependent upon certain variations in mental state, it is fundamentally a mental phenomenon, consequently its study is primarily a psychological problem. A natural corollary is that the method of therapeutic approach must be mental.

AFTER-CARE OF CRIPPLED SOLDIERS.

No matter what degree of skill is used by the military surgeons, what competent nursing the wounded soldier receives or what gratifying results are obtained, war will always leave its trail of grim mementoes. It is sad to see a robust young mechanic go blithely to the front for a few months' campaigning only to return with stumps in the place of hands, unfitted to make his living by his technical skill, doomed to become a lifetime burden to society. For the war pension does not solve the problem. Even if the crippled veteran receives enough to enable him to exist in some degree of comfort, it is an unfortunate thing for him to be obliged to be dependent for many years on the government, to be no longer a productive member of society. Such a state of affairs inevitably saps his moral stamina; multiply his case by thousands and we find a drag downward on the nation.

What then is the solution of the problem? Obviously to fit these potential dependents for social usefulness. Where a soldier is so injured that he has become unfitted to earn his living by the same means whereby he earned it before enlisting, he must be given an industrial education not inconsistent with his disability.

This in itself presents a fascinating problem, comprising as it does the following questions: What is the prognosis of the injury received? What is the mental capacity of the soldier? What special aptitude has he that might be utilized? And lastly, what trade shall be taught him? The first two questions, and in some instances the third one, come within the province of the medical man, the last question should be

answered partly by the soldier himself and partly by industrial experts.

The Austrian Red Cross has established schools for the re-education of the crippled soldiers, four of which are located in Vienna. The preliminary reports from these enterprises are encouraging. Those in charge state that the soldiers take enthusiastically to the idea, finding it an agreeable substitute for gymnasium work. In some instances men spend hours learning to use tools, where formerly they had objected to a half hour at the exercise apparatuses. It is noticed also that the men are much more cheerful since these schools have been introduced, the work seeming to act as a mental tonic.

It has been found possible, in the cases of some skilled workmen who have been so crippled as to be apparently rendered incapable of carrying on their trades, to manufacture tools especially adapted to their conditions and thus restore their usefulness. Right-handed workmen, who have lost that member, have been taught to use their left hand instead. Some workmen who have lost their legs have been taught typewriting and the use of knitting machines. Other substitutes for the individual's former occupation will doubtless be found as the war progresses.

MEDICAL NOTES.

PREVALENCE OF MENINGITIS, PELLAGRA AND POLIOMYELITIS.—During the week ended April 24, seven cases of cerebro-spinal meningitis were reported in New York City, eleven cases of pellagra in Salt Lake City and three cases of poliomyelitis in Chicago.

LONDON DEATH RATE IN MARCH.—Statistics recently published show that the total death rate of London in March, 1915, was 21.2 per thousand inhabitants living. Among the several districts and boroughs the highest rate was 29.1 in Bermondsey, a populous region south of the Thames, and the lowest was 15.5 in Lewisham, a more open residential district on the same side of the river.

HOSPITAL BEQUESTS.—The will of the late Miss Elizabeth Thompson bequeathes, upon the death of the brother and sister of the deceased, equal shares of an estate of \$3,250,000 to the following institutions:—The Children's Aid Society, the New York Association for the Improvement of the Condition of the Poor, the Society of the New York Hospital, the Presbyterian Hospital, and Columbia University.

ACTIVITIES OF THE PENNSYLVANIA HEALTH DEPARTMENT.—During its annual session, which was adjourned on May 20, 1915, the Pennsylvania Assembly made a total appropriation of \$4,632,387 for public health work in that state during the next two years. Of this amount \$2,975,807 were for tuberculosis work.

In the campaign against tuberculosis, which ten years ago was the chief cause of death in Pennsylvania, 115 tuberculosis dispensaries have been established and three great state sanatoria at Mont Alto, Cresson and Hamburg have been constructed. In ten years tuberculosis has fallen from first to second place as a cause of death in the state and the rate is steadily declining year by year.

Four thousand deaths and 40,000 illnesses from typhoid fever was the annual toll exacted from Pennsylvania's citizens ten years ago. To-day this has been decreased more than 75% and although in the meantime the population of the state has increased more than a million, the number of deaths from this cause is only one-fourth the former figure.

During the past year the death rate of 13.9 per thousand inhabitants was the lowest in the history of the state. More than 78,000 people are alive in Pennsylvania today who would have died had the death rate of 1906 continued. Of these 78,916 lives, 40,528 have been saved by the reduction of the four principal diseases.

Typhoid fever	18,865
Tuberculosis	11,924
Diphtheria	4,648
Whooping cough	4,091

During these years, 1,767,000 babies have been born in Pennsylvania whose births have been recorded with all the facts concerning them in the Bureau of Vital Statistics of the Department of Health.

EUROPEAN WAR NOTES.—It is announced that the director general of the English army corps has accepted the offer of the medical schools of Columbia, Harvard and Johns Hopkins Universities to supply 32 surgeons and 75 nurses to administer a British field hospital, probably in England, possibly in France or Turkey. This expedition, which has developed from the suggestion of Sir William Osler under the approval of Lord Kitchener, will be primarily in charge of Dr. Walton Martin of New York, Dr. Edward H. Nichols of Boston and Dr. J. M. T. Finney of Baltimore. The British Government will bear the cost of equipment and transportation but salaries and all other expenses will be met by the respective universities. The first contingent, which is now being selected, will sail about the middle of June, its destination being as yet unknown. It is expected that the hospital of which the expedition will have charge will contain 1040 beds.

It is reported that an epidemic of typhus is raging in the town of Urumiah, Persia, where a Presbyterian mission is located. Nearly all the missionary staff, including Dr. Harry P. Packard of Denver, Colo., are ill, and two fatalities, one medical missionary and a woman worker, have occurred. Several hundred native victims are ill at the mission. It may be recalled that it was to this mission that 15,000 refugees fled when, in March, the Kurds swept down upon the district, killing the Christians of all races. Dr. Packard, who is in charge of the mission, recently returned from a vacation in the United States. It was at the time proposed that he be transferred to a more important mission. The Mohammedan priests and Moslem nobles of the district, many of them former patients in the hospital, protested so strongly against his removal that the plan was abandoned and it is to this friendship so widely felt for Dr. Packard, that the American missionaries attribute their safety in that critical period.

The American Red Cross is at present maintaining hospitals in every one of the countries involved in the European War, and additional hospital units will be sent as rapidly as they can be raised and equipped. The secretary of the New York State branch of the Red Cross, issued on May 23, a statement relative to its work from which may be quoted the following paragraph relative to conditions in Serbia:—

"The Serbian problem is perhaps the most serious that confronts us at the present time. Within the past ten days we have sent to Dr. Strong, the head of the Red Cross Commission in that country, nearly \$40,000 worth of supplies. These supplies included more than 250,000 pounds of sulphur and large quantities of other disinfectants, hospital equipment, tents, automobile tools and other things urgently needed in the battle being waged to rid Serbia of disease."

The greatest present need of the Red Cross is for funds, and this need is greatly increased by the recent entrance of Italy into the war.

Report from Paris on May 24 states that another American field hospital has been established at the front by the anonymous gift of \$10,000 each from three Americans. "The field hospital, in which are twenty tents, has been set up in the Bois de Boulogne. Six of the tents are of large size, being capable, if crowded, of taking care of 200 wounded men. A staff of American ambulance volunteers, among whom Columbia and Harvard Universities and Williams, Amherst and Washington State colleges are represented, has been training for tent pitching. A party of French officers witnessed with astonishment the putting up of a hospital tent complete in 15 minutes and its taking down in six minutes.

Captain Arthur W. Kipling of New York is in command of the staff. Robert M. Clay of New York is in charge of the field section, with J. C.

Hulbert second in command. R. J. Cuninghame of England, the South African lion hunter, is in charge of the tents.

The hospital will be located at a point to be selected by the French sanitary service, just outside the range of the guns."

On account of its recent long distance bombardment by the Germans, it is reported that Dunkirk has been evacuated as a hospital and supply base by the allied armies.

On May 28 the totals of the principal American relief funds for the European War reached the following amounts:—

	N. Y.	N. E.
Belgian Fund		\$259,517.97
Jewish Fund	\$674,805.22	
Red Cross Fund	494,442.78	
American Ambulance	392,363.24	
Prince of Wales	145,000.00	
Serbian Fund	65,761.97	31,647.25
Polish Fund	79,265.70	
Persian Fund	31,241.22	

BOSTON AND NEW ENGLAND.

SCARLET FEVER EPIDEMIC IN MELROSE.—The Winthrop School in Melrose, attended by 400 pupils, has been closed because of an epidemic of scarlet fever. Twenty-three cases had been reported on May 26, with one death. It is believed that an infected milk supply is the cause of the contagion.

DIVISION OF HYGIENE.—Dr. Allan J. McLaughlin, commissioner of health, has established a new department to be known as the Division of Hygiene and appointed Professor Selskar M. Gunn of the Institute of Technology and Simmons College as its chief. Some of the duties of the division will consist in directing child welfare work, public health nursing, promoting traveling exhibits, public lectures and distributing health bulletins and pamphlets.

THE DENTAL NURSE BILL.—On May 21 the House of Representatives of the Massachusetts General Court, refused to accept the report of its committee on ways and means, which advised rejection of the bill providing for the reorganization of the Massachusetts State Board of Registration in Dentistry. By a roll call vote of 130 to 84 this bill was, therefore, replaced on the legislative calendar.

PHYSICAL DEFECTS IN BOSTON SCHOOL CHILDREN.—Dr. Thomas F. Harrington, director of Hygiene in the Boston public schools, has recently rendered a report presenting the result of physical examination of Boston school children in the elementary grades. It appears that over two thousand pupils in these grades have physical defects which hinder their promotion. One-third of all pupils required to repeat grades have physical defects to which their failure may fairly be attributed. The presence of hypertrophied

tonsils and adenoids is found to be the most frequent physical cause for retardation of mental progress in the schools.

TUFTS MEDICAL ALUMNI ASSOCIATION.—The annual meeting and dinner of the Tufts Medical Alumni Association, held in Boston on May 20, under the presidency of Dr. H. A. Donnell, was attended by 60 members and guests. Addresses were made by President H. C. Bumpus, by Dr. C. F. Painter, and by Professor Charles Knowlton. The following officers were elected for the ensuing year: President, Dr. J. F. Coupal, Boston; vice presidents, Dr. I. H. Coriat, Dr. E. I. Wagner, Dr. S. E. Coppinger and Dr. W. H. Green; secretary, Dr. A. P. Cornwall; assistant secretary, Dr. E. M. Brooks; treasurer, Dr. R. B. Sprague; alumni council, Dr. E. M. Rabe, Dr. F. F. Rice, Cambridge; Dr. J. H. Mehan, Lowell; Dr. C. R. Morgan, Dr. Laura A. Hughes, Dr. W. H. White, Dr. J. W. Hinckley, Dr. E. B. Lyle, Brookline, and Dr. E. F. Sewall, Somerville.

MASSACHUSETTS COLLEGE OF PHARMACY.—The forty-seventh annual commencement exercises of the Massachusetts College of Pharmacy were held in Boston on Thursday afternoon, May 20. Degrees were awarded to a class of 38 candidates.

BROCKTON DEPARTMENT OF PUBLIC HEALTH.—The report of the health department of the city of Brockton, Mass., for the year 1914, states that the birth rate was 23.68 and the death rate 11.61. During the year representatives from the Public Health Service in Washington, D.C., made a survey of factory conditions and a study of tuberculosis as a disease of occupation. The department of child hygiene, bureau of commerce and labor, made a survey of the city in regard to infant mortality, on account of the unusually low death rate which the city enjoys. During the last 15 years it has averaged 2.8 per thousand inhabitants as compared with 3.7 for Massachusetts as a whole. Two milk stations were opened during the summer months and cared for 200 babies. As causes of death in the city during the past year, diseases of the heart and arteries rank first, pneumonia second, cancer and tuberculosis fifth and sixth respectively.

BOSTON MILK AND BABY HYGIENE ASSOCIATION.—It is announced that the Boston Milk and Baby Hygiene Association has recently received from the executor of the late Julia M. Moseley of Newburyport, Mass., an endowment fund of \$10,000 given by Mrs. Moseley to be known as the Caroline Louise Moseley Fund, the income to be used in the work of the Association.

BOSTON CITY HOSPITAL TRAINING SCHOOL FOR NURSES.—The graduating exercises of the Training School for Nurses of the Boston City Hospital were held on Friday, May 28. Diplomas were awarded to 40 nurses.

Massachusetts Medical Society.

PROGRAM OF THE 134TH ANNIVERSARY.

The 134th anniversary of the Massachusetts Medical Society will be observed on Tuesday and Wednesday of next week, June 8 and 9 in Boston. A preliminary program of the exercises was published in the issue of the JOURNAL for May 13. Following is the entire body of the program of exercises on both days:—

GENERAL INFORMATION.

A BUREAU OF INFORMATION will be maintained by the Committee of Arrangements during Tuesday and Wednesday in the lobby of the Copley-Plaza Hotel, the headquarters of the Society during the Annual Meeting.

THE ANNUAL DINNER AND ALL GENERAL AND SECTION MEETINGS (with the exception of the combined meeting of the Sections of Medicine and Surgery on Wednesday afternoon) will be held as in 1913 and 1914 at the Copley-Plaza Hotel. During both days of the meeting the facilities of the hotel will be at the disposal of the members of the Society, and parking space for automobiles, with supervision, will be provided. By arrangement with the management, rooms may be secured at a reduced rate by fellows of the Society desiring to spend Tuesday or Wednesday night in Boston.

CLINICS AND DEMONSTRATIONS will be held at the various hospitals on Tuesday morning and will be related as far as possible to subjects to be discussed during the meeting.

The Boston Medical Library, 8 The Fenway, will be open for the inspection and use of the fellows during the days of the meetings.

The Harvard Medical School, 210 Longwood Avenue, and the Tufts College Medical School, 416 Huntington Avenue, will be open for inspection by the fellows both Tuesday and Wednesday.

JUNE 8, 1915.

TUESDAY MORNING.

CLINICS AT THE VARIOUS HOSPITALS.

AT THE BOSTON CITY HOSPITAL.

Demonstrations will be presented in the Surgical Amphitheatre, beginning at ten o'clock, as follows:

1. Pericarditis.—Drs. Sears and Palfrey.
2. Diagnosis of Chest Conditions.—Dr. Ames.
3. Heart Cases.—Dr. Phipps.
4. Transfusion.—Dr. Kimpton.
5. Specimens of Acute Unilateral Hematogenous Infection of the Kidney.
Diverticulæ of the Bladder.
Cyst of the Prostate. } Dr. Cunningham.
6. Tendon Plastics.
Bilateral Empyema. } Drs. Lund and Loder.
7. Modern Anesthetic Methods. Dr. F. L. Richardson.
8. A Series of Gross Specimens of Lesion of the Liver.—Dr. L. U. Gardner.
9. Renal and Ureteral Calculi.—Dr. Blinney.
10. Diagnosis of Early Syphilis of the Nervous System.—Dr. Coriat.
11. Salvarsanized Serum Therapy in Neurosyphilis.—Dr. Sanborn.

Throughout the morning, the hospital will welcome physicians in all its Departments. The schedule for the day is as follows:

- 9.30 A.M. General surgical operations and ward visits by Drs. Faulkner, Hubbard, Crandon, Scannell, Cunningham and Loder. First, second and third operating rooms.
- 9.30 A.M. Genito-urinary operations and ward visit by Drs. Thorndike and Binney. Large operating room.
- 9.30 A.M. Aural operations and ward visit. Dr. Borden. Large operating room.
- 9.30 A.M. Gynecological operations. Drs. Young and Mason. Ward "S" operating room.
- 9.30 TO 12.00 Roentgenological Demonstration with especial reference to pulmonary and gastro-intestinal diseases, by Dr. Ellsworth, X-ray department.
- 9.30 TO 12.00 Pathological, bacteriological and serological diagnostic methods. Dr. Mallory, Pathological laboratory.
- 10.00 A.M. Medical ward visits by Drs. Sears, Ames, Robey, Larrabee, Palfrey and Phipps.

AT THE MASSACHUSETTS GENERAL HOSPITAL.

(The schedule will be carried out at the times given irrespective of attendance.)

- 10.00 A.M. Nerve Department. An Outline of an Intensive Study of Epilepsy.
- 10.10 A.M. Children's Medical Department. Tonsillectomy in Chorea.
- 10.20 A.M. Dr. E. G. Brackett. Cases of Knee-arthrotomy by Median Patellar Incision.
- 10.30 A.M. Dr. C. M. Smith. The Diagnosis of the Primary Lesion of Syphilis.
- 10.40 A.M. Dr. H. Cabot. Carcinoma of the Bladder.
- 10.50 A.M. Dr. G. W. Holmes. The Results of Roentgenoscopic Examination of Gastro-Intestinal Cases During the Past Year.
- 11.00 A.M. Dr. C. L. Scudder. Surgical Treatment of Non-Pyloric Gastric Ulcer.
- 11.10 A.M. Drs. O. Folin and W. Denis. The Occurrence of Phenols and Phenol Derivatives in the Urine.
- 11.20 A.M. Dr. H. Williams. Obstruction of the Common Bile Duct.
- 11.30 A.M. Dr. R. I. Lee. Experimental Purpura Hemorrhagica.
- 11.40 A.M. Dr. D. F. Jones. Treatment of Inoperable Carcinoma of the Rectum.
- 11.50 A.M. Dr. C. A. Porter. Graves' Disease.

Selected operations will be performed in the smaller operating rooms, 10 to 12 A.M., and in the surgical amphitheatre, 12 to 1, by members of the general surgical, genito-urinary and orthopedic staffs.

- 10.00 A.M. Neurological ward visit. Dr. Fairbanks.
- 10.00 TO 12.00 Salvarsanized Serum Treatment of Tabes. Dr. Sanborn.
- 10.00 TO 12.00 Second accident room.
- 10.00 TO 12.00 Cystoscopic Examination and Renal Functional Tests. Dr. Cunningham.
- Cystoscopic room.

Physicians interested in the medical, neurological and gynecological work will find it convenient to enter the hospital by way of the medical office; those interested in the general, genito-urinary or aural surgery and in the special demonstrations should enter by the surgical office. Operations for the day will be posted at the superintendent's office Monday morning, and in the amphitheatre Monday evening.

AT THE PETER BENT BRIGHAM HOSPITAL.

- 10.00 TO 12.30 Exhibition of Cases, with demonstrations and operative clinic by members of the Medical and Surgical Staffs of the Hospital. Detailed program will be found at the Hospital on the morning of the meeting.

AT THE CARNEY HOSPITAL.

There will be a Surgical, a Gynecological and an Orthopedic clinic in the operating rooms, beginning at 9.30 A.M. The Medical Service will make a ward visit.

AT THE CHILDREN'S HOSPITAL.

Medical Service. Dr. John Lovett Morse will make a ward visit and demonstrate interesting cases at 10.30 A.M. *Surgical Service.* Operations will be performed, interesting cases demonstrated in the wards, and end results in cases including empyema will be shown. *Orthopedic Service.* A ward visit with demonstration of interesting cases of bone tuberculosis and infantile paralysis will be made at 10 A.M., and there will be a demonstration of cases and methods of treatment in infantile paralysis, and operations will be performed in the amphitheatre at 11 o'clock A.M.

AT THE INFANTS' HOSPITAL.

A ward visit will be made by members of the Staff at 10.30 A.M.

AT THE FREE HOSPITAL FOR WOMEN.

Gynecological Operations will be performed by the Staff from 7.15 A.M. to 1 P.M.

ANNUAL MEETING OF THE SUPERVISORS.

FOYER, COPLEY-PLAZA HOTEL.

11.30 O'CLOCK.

JUNE 8.

TUESDAY NOON.

ANNUAL MEETING OF THE COUNCIL.

FOYER, COPLEY-PLAZA HOTEL.

12 O'CLOCK.

JUNE 8.

TUESDAY AFTERNOON.

MEETING OF THE SECTION ON MEDICINE.

FOYER, COPLEY-PLAZA HOTEL.

2.30 O'CLOCK.

Officers of the Section of Medicine:

DR. ELLIOT P. JOSLIN, Boston, *Chairman*.
DR. WALTER W. PALMER, Boston, *Secretary*.

SYMPOSIUM ON HEART DISEASE.

1. The Use of Digitalis in the Various Forms of Cardiac Arrhythmias.—Dr. Henry A. Christian, Boston.
2. The Relation of the Abnormal Heart Beat to Prognosis.—Dr. Paul D. White, Boston.
3. Treatment of Heart Disease.—Dr. F. C. Shattuck, Boston.

Discussion:—Dr. John Sproull, Haverhill; Dr. Francis W. Palfrey, Boston; Dr. J. H. Pratt, Boston.

JUNE 8.

TUESDAY AFTERNOON.

MEETING OF THE SECTION OF SURGERY.
STATE DINING ROOM, COPLEY-PLAZA HOTEL.
2.30 O'CLOCK.

Officers of the Section of Surgery:

DR. JOHN BAPST BLAKE, Boston, *Chairman*.
DR. EDWARD P. RICHARDSON, Boston, *Secretary*.

1. Demonstration of a method by which fragments of needles lodged in tissues near the surface of the body may be localized by means of magnetism.—Dr. George H. Monks, Boston.
2. Acute Perforations of Ulcers of the Stomach and Duodenum.—Dr. W. E. Faulkner and Dr. I. J. Walker, Boston.
3. Traumatic Perforation of the Duodenum.—Dr. David Cheever, Jr., Boston.
4. Cholelithiasis: An Argument for Early Operation.—Dr. Joshua C. Hubbard, Boston.
5. A Brief Consideration of Acute Pancreatitis, with Case Reports.—Dr. C. E. Durant, Haverhill.

Discussion:—Dr. P. E. Truesdale, Fall River; Dr. Hugh Williams, Boston; Dr. D. F. Jones, Boston; Dr. Hardy Phippen, Salem.

JUNE 8.

TUESDAY AFTERNOON.

BALLROOM, COPLEY-PLAZA HOTEL.
2.30 O'CLOCK.

Officers of the Section of Tuberculosis:

DR. ALBERT C. GETCHELL, Worcester, *Chairman*.
DR. JOHN B. HAWES, 2ND, Boston, *Secretary*.

1. Non-tuberculous Cases at the State Sanatoria.—Dr. Elliott Washburn, Superintendent, Rutland State Sanatorium.

Discussion:—Dr. E. A. Locke, Boston; Dr. I. J. Clarke, Haverhill; Dr. C. C. MacCorison, Superintendent, North Reading State Sanatorium; Dr. Charles E. Perry, Superintendent, Hampshire County Sanatorium.

2. Errors in Diagnosis in Chronic Diseases of the Lungs.—Dr. John B. Hawes, 2nd, Boston.

Discussion:—Dr. Allan G. Rice, Springfield; Dr. John H. Gifford, Fall River; Dr. Frederick T. Lord, Boston; Dr. H. C. Clapp, Boston.

3. What Constitutes Tuberculosis in Childhood.—Dr. John Lovett Morse, Boston.

Discussion:—Dr. Walter C. Bailey, Boston; Dr. Cleveland Floyd, Boston; Dr. F. B. Talbot, Boston; Dr. H. D. Chadwick, Superintendent, Westfield State Sanatorium.

JUNE 8.

TUESDAY EVENING.

THE SHATTUCK LECTURE.
FOYER, COPLEY-PLAZA HOTEL.
8 O'CLOCK.

By DR. JOEL E. GOLDSWORTHY, Boston.

Subject: "An Anatomic and Mechanistic Conception of Disease."

At the close of the lecture there will be an Informal Reception to the President; Music by the Boston Festival Orchestra and Mr. Alfred Denghausen, Baritone; Refreshments.

JUNE 9, 1915.

WEDNESDAY MORNING.

ONE HUNDRED AND THIRTY-FOURTH ANNIVERSARY.
FOYER, COPLEY-PLAZA HOTEL.
9.30 O'CLOCK.

Business of the Annual Meeting.

Program arranged by the Sub Committee on Scientific Papers of the Committee on Publications and Scientific Papers, Dr. James S. Stone, Boston, and Dr. Frederick T. Lord, Boston.

The papers will be devoted to the following topics, viewed from the standpoint of Public Health and Preventive Medicine. Each speaker will be limited to ten minutes.

1. The Work and Aims of the State Department of Health.—Dr. Allan J. McLaughlin, Boston.
2. Pneumonia.—Dr. Frederic T. Lord, Boston.
3. Infant Mortality.—Dr. John Lovett Morse, Boston.
4. Typhoid Fever.—Dr. M. W. Richardson, Jamaica Plain.
5. Preventable Heart Disease.—Dr. Roger I. Lee, Cambridge.
6. Tuberculosis.—Dr. Arthur K. Stone, Boston.
7. Syphilis.—Dr. Abner Post, Boston.
8. Contagious Diseases.—Dr. Eugene R. Kelley, Boston.
9. Cancer.—Dr. Edward Reynolds, Boston.

TWELVE O'CLOCK, NOON.

THE ANNUAL DISCOURSE WILL BE DELIVERED BY
DR. EVERETT A. BATES, SPRINGFIELD.

Subject: "Some Perplexities in Modern Medicine."

JUNE 9, 1915.

WEDNESDAY AFTERNOON.

COMBINED MEETING OF THE SECTIONS OF MEDICINE AND SURGERY.

SURGICAL AMPHITHEATRE, BOSTON CITY HOSPITAL,
HARRISON AVENUE.

2.30 O'CLOCK.

Chairmen: DR. ELLIOT P. JOSLIN, Boston; DR. JOHN BAPST BLAKE, Boston.

Secretary: DR. WALTER W. PALMER, Boston.

SYMPOSIUM ON EMPYEMA.

1. The Medical Aspects of Empyema and Pulmonary Abscess.—Dr. F. T. Lord, Boston.
2. The Recognition of Pleural Disorders by X rays, with Especial Reference to Empyema.—Dr. Percy Brown, Boston.
3. Pneumo Dynamics of the Treatment of Empyema.—Dr. F. C. Cotton, Boston.
4. The Surgical Treatment of Chronic Empyema.—Dr. F. B. Lund, Boston.
5. Lung Abscess and Bronchiectasis from a Surgical Point of View; End Results of Acute and Chronic Empyema.—Dr. Wyman Whittemore, Boston.

Discussion:—Dr. George G. Sears, Boston; Dr. John Homans, Boston; Dr. James S. Stone, Boston; Dr. Frank L. Richardson, Boston.

JUNE 9, 1915.
WEDNESDAY EVENING.

7 O'CLOCK.

The ANNUAL DINNER will be served in the BALL-ROOM OF THE COPLEY-PLAZA HOTEL, promptly at 7 o'clock. No dress suits.

DINNER TICKETS.

Tickets for the Annual Dinner at one dollar apiece may be obtained at the Bureau of Information during the two days of the meeting by those fellows whose current dues are paid up.

NOMINATING COMMITTEE.

Following is the nominating committee elected by the District Societies at their annual meetings in April and May, 1915, to nominate officers and orator at the annual meeting of the Council, June 8, 1915:

	Principal	Alternate
BARNSTABLE	E. E. HAWES	C. W. MILLIKEN
BERKSHIRE	L. A. JONES	J. H. RILEY
BRISTOL NORTH	F. A. HUBBARD	R. D. DEAN
BRISTOL SOUTH	H. G. WILBUR	A. H. MANDELL
ESSEX NORTH	F. W. SNOW	R. V. BAKETEL
ESSEX SOUTH	J. F. O'SHEA	BUTLER METZGER
FRANKLIN	G. P. TWITCHELL	
HAMPDEN	S. A. MAHONEY	J. M. BIRNIE
HAMPSHIRE	F. H. SMITH	J. S. HITCHCOCK
MIDDLESEX EAST	C. J. ALLEN	W. H. KELLEHER
MIDDLESEX NORTH	T. G. MCGANNON	G. O. LAVALLEE
MIDDLESEX SOUTH	E. H. STEVENS	C. E. PRIOR
NORFOLK	T. J. MURPHY	A. N. BROUGHTON
NORFOLK SOUTH	J. A. GORDON	C. S. ADAMS
PLYMOUTH	A. E. PAINE	F. G. WHEATLEY
SUFFOLK	J. J. MINOT	G. W. W. BREWSTER
WORCESTER	DAVID HARROWER	R. W. GREENE
WORCESTER NORTH	E. A. SAWYER	A. P. MASON

Obituary.

MICHAEL FREEBERN GAVIN, M.D.

DR. MICHAEL FREEBERN GAVIN died at his home in South Boston, May 20, 1915, after an illness of eight years. He was born in Rosecommon, Ireland, May 12, 1844, coming to this country as a young man and entering the Harvard Medical School, from which he was graduated with the class of 1864. Dr. Gavin was among the group of house officers that was the first to graduate from the Boston City Hospital, and later in life he was visiting surgeon to this institution for many years, being consulting surgeon at the time of his death. During the Civil War he served as assistant surgeon to the 57th Massachusetts Infantry and at its close settled in practice in South Boston. Studying abroad in 1865 and 1866 he became a Fellow of the Royal College of Surgeons of Ireland. He was a Fellow of the Massachusetts Medical Society, member of the American Medical Association, member Boston Medical Library, the Boston So-

ciety for Medical Improvement and the British Medical Association; consulting surgeon, Carney and St. Elizabeth's Hospitals and St. Mary's Infant Asylum. At one time, from 1878 to 1884, Dr. Gavin was a trustee of the Boston City Hospital. He was also a director of the Union Institution for Savings and of the Mattapan Deposit and Trust Company. From 1888 to 1891 he was a teacher of clinical surgery in the Boston Polyclinic. During his long years of service at the City, Carney and St. Elizabeth's Hospitals he was known to a large number of house officers, to whom he was most generous, and to the visiting staffs as a surgeon of conservative judgment and a kindly, considerate and courteous gentleman. He is survived by a widow, a daughter and one son.

Miscellany.

AFTERMATH OF THE CLEAN MILK BILL.

In last week's issue of the JOURNAL we commented editorially on the governor's veto of the Labor Clean Milk bill and in another column published the text of his veto message. In the succeeding column of the present issue of the JOURNAL we publish a further communication bearing on this important subject. In this conjunction it seems desirable also to reprint in part the following statement issued by the council for the Massachusetts Milk Consumers' Association in reply to various statements made in the governor's veto message.

"The laws of 35 other states give the consumers more protection than is given in Massachusetts. This legislation originated with Dr. Charles Harrington when he was secretary of the state board of health.

"There are some very brilliant exceptions, but in general it may be said that the local boards of health fail to do their 'duty under the present laws,' and they do not 'vigorously exercise' the ample powers which they do in fact possess. A large number of local boards have no physicians or trained men connected with them.

"Only 97 out of 354 cities and towns even have an official called a milk inspector. Very few of these milk inspectors inspect dairies or do more than analyze milk for fats and solids. Only three or four local boards pay any attention to the long haul, out-of-state dairies.

"The answers to a questionnaire sent out by the Milk and Baby Hygiene Association prove conclusively that very few local boards are enforcing the acts of 1914, chapter 744, so largely relied upon by the governor in his message. When the board of health of Winthrop started to enforce the act of 1914, the first contractor

sent in a list of 1500 dairies, chiefly out of state, which it would be their duty to inspect. As Winthrop received only a few drops of milk from each of these dairies, and as most of the milk went to many other places in the state, they dropped the matter immediately on the ground that this work the state department of health ought to do in order to save needless duplication, and it was for this reason that the Winthrop board of health supported the Clean Milk bill.

"The Labor Clean Milk bill deals very leniently with producers. No man who is willing to 'clean up' when requested to do so, or possibly to put in a window or to replace a rotten floor, would come within its terms. The master of the state grange, Representative E. K. Chapman, stated that he was satisfied with it when the amendment giving producers 20 days in which to remove objectionable features was added. He stated on the house floor that it would not affect more than 25 or 30 producers in the state of Massachusetts.

"Instead of creating discrimination, it tends to remove the discrimination against Massachusetts producers. The bill applies to milk produced outside of the state under insanitary conditions.

"If Mayor Curley's \$35,000 bill for the exclusive inspection of out-of-state dairies, which was killed by the grangers in the Legislature, had been passed, it would, in conjunction with this bill, have completely eliminated the unfair discrimination against Massachusetts producers.

"Perhaps the most astonishing thing in the message is that the bill 'will not improve the quality of our milk supply one iota, since it deals only with the conditions of production without any attention to the actual quality of the product.' I think it will be generally conceded that improving the conditions of production will improve the quality of the product.

"The purpose of the bill is to remove the causes of dirty milk by keeping the dirt out of the milk, in the first instance, as far as possible.

"We approve of milk tests in connection with dairy inspection, but realize that in most instances the milk is consumed long before the result of the milk test can be known."

Correspondence.

AFTERMATH OF THE CLEAN MILK BILL.

CANTON, MASS., May 22, 1915.

Mr. Editor:

Now that the Clean Milk Bill, after being slowly dismembered, has been finally relegated to the scrap-heap (a fate which the writer thinks it justly deserved), is it not the time to investigate with a view to learning what legislation our Commissioner of Health wishes enacted in order to facilitate his work? If we put the same amount of energy toward gaining this as has been expended in endeavoring to push

through some sort of milk bill the results probably will be more satisfactory.

It seems to the writer that milk production and distribution is the affair of the locality in which that milk is consumed. The product is what the consumer is interested in. Make the product come up to a standard of purity and the methods will look after themselves. Now the product, whether produced in or out of the state, by good or poor methods, when it reaches a given community should be fit for consumption. If it is not fit for use its distribution should be prohibited. Dairies whose milk has been refused will soon remedy conditions themselves, a thing which they will never do if you inspect them from now until the end of the world. Dairymen are tired of inspections and will rarely obey instructions given by an inspector. Now if you shut off his means of disposing of his milk because it is not clean, not fit for food, it will take him just twenty-four hours to correct the mistake or take means to find out where his trouble is.

This milk question is a matter which must be settled by each locality for itself. If a locality doesn't wish to drink dirty milk it will refuse to do so. In that case it doesn't need anyone to prescribe for it. If a locality doesn't care what kind of milk it drinks it will soon find it gets all the poor milk, which in itself will be the very thing needed to bring it to the place where it, too, will demand clean milk. The amount of dirty milk consumed in a given city or town depends on that city or town, and indirectly on its health officials, and you can't shift the responsibility to any state department of health.

As I said in a previous communication, I believe that the State Department of Health should have authority over local boards, but this should be given to it in some far-reaching comprehensive manner, and not in the matter of milk production alone.

Respectfully yours,

DEAN S. LUCE, M.D.

COMPULSORY TREATMENT FOR SYPHILIS.

DALLAS, TEX., May 17, 1915.

Mr. Editor:

So much good has come from the Harrison Narcotic Act, it has occurred to me much could be accomplished by a law providing for compulsory treatment for syphilis. All must confess our present system in combating the propagation of the disease, is a failure. Our health boards, hospitals, and private individuals, have spent thousands of dollars in combating tuberculosis; but what has been accomplished in syphilis? We have our insane asylums rapidly filling up with cases of general paralysis, and other forms of mental disease, caused by syphilis. About 80% of all the cases of blindness in our asylums are caused from venereal diseases. In our large cities, there are undoubtedly three cases of syphilis to one of tuberculosis. Yet this plague is hidden from the eye of the casual observer. Indeed there may be few symptoms, or even none, detected, even after a careful medical examination, and the person may still be in the infectious stage. Hundreds, and I may say thousands, of men and women, eat daily in restaurants, and boarding houses, with mucous patches in their mouths, and the same spoons and forks used by them, are handed to other persons the next meal, the only disinfectant being some slightly warmed dishwater.

If we are able to enforce the law of compulsory vaccination; if we can isolate persons with smallpox, bubonic plague, yellow fever and other infectious diseases, why not have a law for compulsory treatment for syphilis? We now have the Wassermann test, and are able to detect easily an infectious case, even without observable symptoms. The only difficulty would be in catching our patient. In order to get a practical law on the statute books, we should not attempt anything too drastic at first. We should have to contend with a suspicious and unenlightened public; and with equally ignorant and obstinate law-

makers. Did not vaccination meet with opposition in its early days?

If our health boards would give the matter careful consideration, and present the true facts before our city authorities, they could, no doubt, secure the enactment of a law compelling all persons convicted of vagrancy in our police courts, to submit to the Wassermann test. Vagrants could either be detained in the city jails, or released on bond, to appear in court in ten or fifteen days. If a positive reaction were found, they could be turned over to a board of health for compulsory treatment. They should be placed in a hospital, and their clothing taken away from them and nightgowns substituted to prevent them from running away, a procedure now generally followed with "dope fiends." After the public had been shown that no less than 80% of all vagrants, both men and women, are infectious syphilitics, the law could be extended to apply to all convicted criminals, and later made to include all persons who became a public charge. In this way thousands of syphilitics could be rendered non-infectious. After many years of faithful teaching, the general public might be brought to submit to a general blood test, say once in one or two years. If every person in the United States, between the ages of 16 and 60 should submit to a blood test once a year, the disease would soon be wiped out. The cost of an organized system of blood examination and treatment would be less than caring for the chronic syphilitics and their descendants: and the relief of suffering would be inestimable. Who would not give a few drops of his blood once a year to assist in blotting out such a terrible disease?

Very truly yours,

DAVID G. HALL, M.D.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING MAY 22, 1915.

CONTRIBUTIONS.

Dr. H. M. Manning, P. A. Surgeon, U.S.P.H.S. Charlestown, S. C.....	\$ 5.00
Anonymous—K., Toledo, Ohio.....	5.00
Dr. Dwight G. Kreul, Davenport, Iowa.....	10.00
M. L. H., Wallum Lake, R. I.....	3.00
Knox Co. Medical Society, Fredericktown, O.....	10.00
The Medical Club of Portland, Portland, Ore..	25.00
Dr. Edward E. Bancroft, Wellesley, Mass....	10.00
Dr. Thomas St. Clair, Latrobe, Pa.....	5.00
Dr. Fred T. Murphy, St. Louis, Mo.....	50.00
Dr. Hermann Grad, New York, N. Y.....	10.00

Receipts for the week ending May 22.....\$ 133.00
Previously reported receipts..... 6860.50

Total receipts.....\$6993.50

Disbursements for the week ending May 22:

178 standard boxes of food @ \$2.28..\$ 405.84
Previously reported disbursements:
1625 standard boxes of food @ \$2.20..\$3575.00
1309 standard boxes of food @ \$2.30.. 3010.70

Total disbursements.....\$6991.54

Balance \$1.96

F. F. SIMPSON, M.D., Treasurer,
704S Jenkins Arcade Bldg.,
Pittsburg, Pa.

The following is an extract from a letter from Dr. George W. Crile of Cleveland:

"When I was in Belgium I received first-hand information from a number of Belgian physicians concerning their plight. They are indeed in dire need and there seems to be no way by which this need can be overcome until their land is restored to them again. The free masonry of the medical profession so binds

all medical men together that it seems to me that no appeal to doctors for the aid of their associates in Belgium can be in vain. We should all realize also that no single appeal can satisfy what is going to be a long continued need, that we must give now, later again, and still later and so answer repeated appeals until later conditions may restore to the Belgians the wherewithal to aid themselves."

SOCIETY NOTICE.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—The annual meeting will be held at the Copley-Plaza Hotel, Boston, on Tuesday, June 8, 1915, at 2 o'clock.

Preceding the meeting, the annual lunch will be served in an adjoining room.

Annual reports and election of officers.

The following papers will be read and discussed:

1. "Chemical Tests for Cyanide Poisoning," Dr. William F. Whitney, of Harvard Medical School.

2. "The Disposition of Property Found on or about the Body," Dr. Fred E. Jones, Medical Examiner, of Quincy.

3. "Accidental Death from a Stray Shot from Unusual Distance," Dr. Charles W. Milliken, M.D., Medical Examiner, of Barnstable.

OLIVER H. HOWE, M.D.,
Recording Secretary.

NOTICE.

HARVARD MEDICAL ALUMNI ASSOCIATION.

An informal table d'hôte luncheon will be held by the Harvard Medical Alumni Association on June 23 at the University Club in San Francisco. Dr. William P. Lucas of the University of California Medical School and Mr. William Thomas, president of the San Francisco Harvard Club will be in charge.

APPOINTMENTS.

Dr. Edward C. Rosenow, of the Memorial Institute of Infectious Diseases, Chicago, has recently been appointed to the position of chief of bacteriologic research, Mayo Foundation, Rochester, Minn.

Dr. J. Alexander Murray has been appointed general superintendent of the Imperial Cancer Research Fund and director of the laboratories to succeed Dr. E. F. Bashford.

Dr. Lentz, director of the Prussian imperial health office, has been appointed the reporting councilor in the medical department of the ministry of the interior. He succeeds Dr. Abel who has been transferred to the Institute of Hygiene at Jena.

Dr. Thomas Ordway, Harvard Medical School, has accepted the deanship of the Albany Medical College. Dr. Ordway was formerly professor of pathology at that institution.

Dr. Samuel G. Dixon has been reappointed as Commissioner of Health of the Commonwealth of Pennsylvania.

RECENT DEATHS.

DR. HENRY WALTON WOOD, a Fellow of The Massachusetts Medical Society, died at Philadelphia, Penn., Jan. 12, aged 35 years, of tuberculosis.

DR. JOHN JOSEPH HECTOR MCALLESTER, a Fellow of The Massachusetts Medical Society, died of nephritis at New Bedford, Mass., April 16, aged 37 years.

The Boston Medical and Surgical Journal

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Massachusetts Medical Society.

ANNUAL DISCOURSE.

NOTE.—At an adjourned meeting of the Massachusetts Medical Society held Oct. 3, 1860, it was

Resolved, "That The Massachusetts Medical Society hereby declares that it does not consider itself as having endorsed or censured the opinions in former published Annual Discourses, nor will it hold itself responsible for any opinions or sentiments advanced in any future similar discourses."

Resolved, "That the Committee on Publications be directed to print a statement to that effect at the commencement of each Annual Discourse which may hereafter be published."

SOME PERPLEXITIES IN MODERN MEDICINE.*

By EVERETT A. BATES, M.D., SPRINGFIELD, MASS.

It is proper and appropriate that, we, members of the Massachusetts Medical Society, should upon occasions like this turn our thoughts to some subject whose consideration may illumine our path or encourage us if appalled by the magnitude of professional detail.

More than a hundred addresses have been delivered since it became the custom of the Massachusetts Medical Society to choose from its members an orator for its annual discourse.

These discourses have embodied subjects pertinent to the time, as the wave of medical progress tossed into view some new thought from out the depths of unknown problems; and each orator has given his best efforts, and has been stimulated to this effort by the example of each individual among a long list of physicians eminent

* The Annual Discourse delivered before The Massachusetts Medical Society at Boston, June 9, 1915.

in teaching, devoted to their work, and serious minded in their duty.

These splendid examples I cannot hope to emulate nor can I expect even a modest approach to their successes; but I deeply appreciate the honor you have given me, and my desire is to prove a not unworthy representative of my brethren of the Connecticut valley.

In the vast library of medical literature of today it would seem that no phase of scientific investigation as applied to medical progress is left untouched; this great volume of knowledge is a startling testimonial of the restless activity of minds working along a multitude of different radiants toward a common goal or centre. It is a mass of material that contains an abundance of folly and error as well as an abundance of worth; and its final analysis and the summation of facts that have stood the test of dispute and counter dispute constitutes our present day knowledge of medical sciences and has provided the basis of its application to the prevention and relief of diseases. We have not been alone in our far wanderings, haltings and uncertainties; for every progressive thought, as mirrored in the picture of scientific accuracy as we see it today, is the wonderful composite of a myriad of sittings and exposures; and the thought of the future portrays a strenuous individualism in the contemplation of which the mind wearies.

The history of medicine itself is the history of a workshop in which different working units have patiently and with painful effort constructed a system which we call today the Science of Medicine and Surgery.

That which was gross and invisible in the hu-

man body naturally first claimed the attention, and gave to anatomy its right to be considered the fundamental and original medical science; the possibilities that it gave for exact knowledge more especially when the microscope revealed the minute structure, from the embryo to maturity, has enhanced its value to the student in his thought of that which is best adapted to the practical side of his coming vocation; to be a prosector in a medical school twenty-five years ago was the acme of his ambitious elementary years; and the field of surgery must ever prove of tempting glamor. Naturally the function of a part went with its structure so that physiology followed hand in hand with anatomy its tedious course of progress, getting only now and then through the centuries the impulse of the master mind of a Galen and Harvey, but finally emerging as an intricate and bewildering science, and one which, intensely essential in its elementary values, is, through its advances in the past decade in the chemistry of digestion, nutrition and metabolism, quite beyond the absorbing capacity of the busy physician of an earlier training.

Pathology, the beginning of the science upon which the practice of medicine is, or should be, based, must necessarily arise when the early investigators of the human body began to find in their dissection certain variations from the organs as commonly noted; but not till fifty-five years ago did the great Virchow proclaim his cellular pathology, demonstrating that all bodies are made up of cells, and that each cell has a unity and purpose of its own,—thus, through the nature of normal function, showing the way to physiologic and pathologic experimentation. Finally, the microscope in the hands of a Pasteur and a Koch gave bacteriology to the world, the last and youngest of all the medical sciences, and completed the link in a chain of discoveries that are slowly solving the mysteries of life and that which makes for better living, better work, better rewards,—the healthy human body; for the ultimate perfection of the human race is the dream of the soaring fancies. And out of the limitless researches into these correlated sciences has come practical medicine as we see it today; an achievement of which we are justly proud, and upon which we love to dwell in words of praise; its scope is boundless, for by it we would preserve the normal through the prevention and control of all agencies that are destructive to it,—impressing legislative and federal control when necessary to better accomplish the result, we would discover by painstaking inquiry or by an elaboration of technical methods the earliest departure from this individual normal, and so provide in return an extension of its economic value; we would attempt to restore partially or wholly the person accidentally the victim of infection and trauma, or to reconstruct an anatomical or remove a pathological variation. In truth there is no region which the fancy does not penetrate in the ambitious flight of the vo-

taries of our profession, comprising a large number of experimentalists, teachers, writers, specialists, along with workers in the broad field of medicine and in its relation to the social status. A contemplation of the amount of knowledge that even a moderate acquaintance with these systematized masses of medical learning must entail upon the future student and practitioner is startling, for it intimates a degree of technical procedure and exactness that will not become any less impressive as the decades pass; and it implies that the solution of the problem of the office or the bedside or the hospital will be undertaken with an increasing scientific accuracy and precision and that it will require an ever renewed relationship on the part of the clinician with the medical scientist and his newest discoveries. The standard must constantly, although rather slowly to some of our impatient educators, advance, and the standard bearers must partake more and more of this advance in knowledge among the leaders. It is a self-evident conclusion. The chasm of ignorance thus quickly bridged in a comparatively few years is discerned by this rapid review of the history of medical growth.

Before the discovery of the great principles which lie at the bottom of our present day enlightenment, which we call scientific medicine, there existed for centuries a turmoil of contentions—a Babel of conjecture—theories varying from dogmatism to skepticism, until “confusion grew the worse confounded;” from these questionable methods, opinions and practices, many minds finally sought refuge in the simple thought of experience based upon observation as the only rational course in practice. Although empiricism was founded on speculation, Bacon, its ardent advocate in the seventeenth century, would seem to have given it the right to be considered the forerunner of our present scientific aims, when he said, “*vera scire est per causas scire*,”—to know truly, is to know through cause; and yet up to a half century ago so little had been gained by this early scientific thought that there existed only warring “schools” and “isms,” affording the defenders of each much material for discussion, but no rational, enduring and exact procedure governing health and disease.

Germany seemed first to learn the lesson that arose from the natural evolution of the medical sciences and became a power in the medical world by her painstaking application to clinical medicine, of her exact and detailed methods of investigation. It is the same impetus that has recently startled the world. A critic has said, “It is the evolution that means the survival of the fittest and the destruction of the unfit: and it places sympathy with the weak virtues as a weakness itself.” It is the philosophy of Nietzsche that “might is the ultimate proof of right.” “Get everything you have the strength to get.” To quote Charles Francis Adams, “It is the absolute negation of everything in the past which

has tended to the elevation of mankind." It is a return to the primeval law of the strongest; it has raised that much-used and misused word "efficiency" to the center of the color standard and to it everything else is subordinated.

There would seem to be a parallelism in this militaristic philosophy when applied to any conflict which reduces its methods to an exact science, and interprets its duty in terms of modern thought as one bereft of romance or any other human elements that might detract from scientific efficiency. We know there can be no finality in our work, but it is self-evident that by clinging too closely to the present day thought of scientific accuracy, the medical profession will have lost the splendid worth of cultivated or even random observation, so valuable a part of the equipment of our predecessors. Nothing really revolutionary ever occurs, and progress is more often by slow development.

Over medication in medicine received its first blow when from simple observation it was seen that many diseases ran a definite course, self limiting in time, irrespective of treatment; later, bacteriology so clearly defined the cyclic life of certain infectious organisms and the self destruction of others at the hands of nature's protecting and assisting processes, that the old faith in the cure of disease by some drastic method gave way finally to a period of therapeutic skepticism and little if any medication. Not that these days of waning confidence in drugs are the proof of their lost efficiency; no such conclusion can sanely be reached; but fortunately most of the old zeal and confidence in the utility of drugs has been brought to a safer and more practical ground, based on the more scientific reasoning of experimental pathology and pharmacology. Many of us have not forgotten the axiom of a wise clinician and practitioner.—"Never use a drug unless you are sure it is indicated, and if you do use it, use it fearlessly, to the relief of the symptom for which it is given, or to the physiological action of the drug." Such a procedure is wisely rational and implies a method based upon avoidance of medication without reasonable evidence in its favor; and requires in addition an exact knowledge of drug action, in order that a harmful result may be recognized as promptly as a beneficial one.

Long continued usage, however, has given a sanction to medication that cannot be completely overcome by the known fallacy of *post hoc ergo propter hoc*; and the exactness of our present-day science does not readily dispel what may be accounted intolerant empiricism. The iniquitous practice of bleeding may upon occasions today be condoned; the successful use of Peruvian bark was an established fact several hundred years before science had discovered the reason. Long employed customs won in many instances the right to permanent recognition, where nothing but tradition, based on ancient experience, could satisfy the claim. To walk abroad after

nightfall was to invite yellow fever; to smoke in its presence was a "charm" to your immunity,—truths nearly as self evident two centuries ago as now. So that although causation may now be the only true key to the therapeutic solution of a problem, it may still be a not altogether foolish conservatism that leads the well balanced mind to return *si opus sit* to some traditional thought or practice; for the absence of a scientific reason might cause inaction in treatment to the detriment of the patient; and while a credulous following of methods and the practice of the instructors with whom the student came in contact during the days of his medical education is to be deprecated as having its limitation, it may be stated that the true attitude must be,—respect for the past, and the ideas of our predecessors, even though greatly limited and modified. "There were great men before Agamemnon."

The disillusionment that has so completely changed the thought in medication is also apparent in the surgical field. Modern surgery has been made possible by the discovery of agents that removed the two great terrors that held it in leash,—conscious pain and sepsis. The natural result of the release of such early restrictions was evidenced in the swing of the pendulum to the extreme of its arc, and scientific ardor took the place of judgment; the earlier operations of necessity or expediency becoming less popular than what may be called the operations of chance. Asepsis permitted a rashness which displaced the consideration of the right of a given human entity to the benefit of a doubt, and made the exploration of almost every heretofore uninvaded area in the body, and the removal or rearrangement of its contents a successful possibility; modern surgery thus by its brilliancy invited a boldness which led away from the sound principles of conservatism. But however far the comet may turn from the sun in its long orbit, there must be a return; and the thoughtful surgeons of today have called the attention of the medical profession to the abuses that enthusiasm, often unfortunately accompanied with insufficient training or natural talent, has begotten. The reasonable and logical result has been the organization of a college of surgery, through which ultimately may be brought about the standardization of the surgeon and the dream of a rational surgery; for it is to be assumed that surgery is passing through a stage not wholly dissimilar to the stage of over-medication in medicine.

Although the abuses incident to the treatment of medical diseases were but slowly recognized, absolute empiricism finally giving way to a rationalism secured only through the tedious building up of a scientific medical structure,—and although the elaboration of surgical technique made possible surgical procedures not wholly consistent with the natural limitations of every useful applied science,—there is a similarity in the excesses in these two branches, medicine and

surgery, that over-enthusiasm may create, which should lead to a further questioning of methods that charm and captivate, and at the same time may confuse.

The success of medical or surgical treatment requires an accuracy which must be based upon thoroughness of diagnosis. This is the first essential, and it may also be considered the leading perplexity. To the fundamentals, anatomy and physiology, have been added pathological anatomy and pathological physiology, naturally stimulating an elaboration of diagnostic methods, intricate as well as comprehensive. We would certainly wish to absorb and possess these essential aids to success, but there are human limitations; we are willing to admit mental lapses when we do not think—not to be classified as true examples of ignorance; we are conscious that our judgment is subject to the usual frailty of deductive reasoning based upon premises which have not arranged themselves with sufficient clearness of mental vision; we are not immune from the possibility of becoming narrowed to a line of thought, that tends to the grouping of problems of obviously different nature into the class of causes to which we have given serious and earnest attention; we would even plead a disinterestedness and a disinclination to assume a given responsibility, as impairing a clear conclusion. These cause errors, which, while not insuperable, may be condoned as chargeable to inherent weakness, unrealized or confessed. But our real perplexities must first arise with the conscientious attempt to form an opinion that shall be free at least from the charge of incomplete examination. At once the clinician is confronted with the necessity of deciding whether in the light of modern methods he is reaching a superficial conclusion or whether he may not be indulging in an over-elaboration entirely unwarranted.

It is to be assumed that certain fundamental principles in our search for the diagnosis are always necessary, involving the intelligent answering of such questions as may be pertinent to the case.

There can be no controversy upon this point; and the more detailed and accurate, the more valuable the wisdom of the opinion sought. But there may arise today certain doubts as to the completeness of an examination, if history, and the routine of inspection, auscultation, percussion, palpation, and urinalysis, alone are deemed sufficient: these were the methods which a quarter of a century ago were considered, if completely and carefully executed, as the acme of a technical alertness quite all-sufficient.

In our large hospitals the little laboratory in some inconspicuous room had not been replaced by the modern hall of research, with its corps of assistants, that occupies such a conspicuous place in modern hospital equipment, and makes available the many present day accessories to medical and surgical practice. Small wonder

that the contemplation of the rapid stride of medical progress in this single phase of better diagnostic helps and the multiplication of the methods now necessary to a thorough and complete examination, leaves the mind of the practitioner of twenty-five years in a maze of doubt and perplexity, and with a peculiar sense of unfitness for his daily problems.

It is easy to conceive that the stupendous requirements in this field of diagnosis alone are accountable in no small degree for the growth of specialism which it is stated now has an enrollment of thirty-four claiming distinction. The "isms" of the old days, representing the evolution in medical progress of many quarter century periods were not so numerous. This rapid division of labor and its apportionment in our midst among the discerning, who from special interest, from opportunity chosen or compelled, or from a desire to be relieved of the tedium of general practice, saw the hand writing on the wall, was clearly a necessity.

The same query of human limitations urged a solution of complete or incomplete mastery of the complexities of medical knowledge, and to which perplexity there could be but one answer, a division of the work. Although specialism was fully justified for this reason,—its modest beginnings being contented with a refined ability in diseases of some of the special senses,—there could not be foreseen the numerous subdivisions its scope would include; and while there is much that is good in the allotment to specialists of the difficulties that are obviously best treated by the hand, the eye, the ear,—with its brain skilled in the interpretation of their discoveries,—certain abuses must be admitted to have arisen, detrimental alike to practitioner and patient.

The rise and growth of specialism have been the result, not alone of its necessary existence, but also, as has been hinted, owing to the rapid advancement of medicine in diagnostic methods applicable through laboratory research, and through instruments of mechanical precision. The memory is easily recalled of charts whereon was summarized in orderly arrangement all that was needed to classify the particular renal defect that the unfortunate producer of the specimen at hand possessed; it was held possible thus to differentiate any one of a dozen important and different conditions irrespective of any other knowledge of the clinical problem. As often happens, the increasing minutiae of examinations, designed to have a purely helpful and practical application, actually deprive them of their first intrinsic value, and result in a detailed procedure, possible only to the specially skilled; the promise of new vantage is thus shorn of its usefulness in the complexity brought about by its illogical and exaggerated growth. Moreover, the simplification of diseased conditions that seemed to warrant several subdivisions, may so change the anatomic or the clinical grouping, that a large portion of the analysis is rejected as

unnecessary, since the lesion sought can often be determined by a few essential tests. When also, in addition, a widening intelligence discloses that the urgent problem in the clinical consideration of disease is the functional capacity of organs, the old perplexities, attendant upon the elaborate estimation of the finer pathological changes, are replaced by newer ones for determining functional efficiency.

The task is always the problem of applying necessary tests in as concentrated working form as possible.

The same criticism may be applied to hematology: that it has solved some problems, and gives the diagnosis in a few diseases is to be admitted; that routine examinations of the blood are comforting in their negative findings; and that hematology may give hints to conditions quite distinct from diseases of the blood itself, is well known; but a few simple tests have supplanted elaborate ones except in cases where a systematic search is required, and the great expectations of the earlier days in its rise as a laboratory method of the greatest importance have been disappointing, and added another to the list of diagnostic uncertainties.

Similar experiences have befallen our hopes in other methods, which seemed about to solve many of our vexatious problems. The introduction of the stomach tube for diagnostic purposes led to the firm belief that at last the field of gastric complaint would be cleared of its uncertainties; that it has given us much that is to be considered as a valuable addition to our medical knowledge none can deny; but that its use has resulted in any marked simplification of diagnostic difficulties can neither be affirmed. It is possible that too great a demand in the beginning was put upon this functional test in the expectation that it would reveal decisive characteristics. The process of unlearning has always been in evidence in all scientific advancement; the constant tearing down of the structure can alone give ultimate stability. Always there exists the intricate and manifold mutual relationship between diseases, causing often a confusing symptomatology, and a failure to find in elaborate laboratory methods the solution sought.

There is a certain refreshing charm in Fitz's clearness of vision when he says in his monograph—"The Diagnosis of Abdominal Disease": "An attempt to make a differential diagnosis of abdominal disease demands in the first instance an available knowledge of topographical anatomy—the knowledge which needs constantly to be refreshed and controlled by frequent attendance at post-mortem examinations, and repeated observation of surgical laparotomies."

It is not to be inferred that any rebellious thought is intended in mentioning certain fallacies commonly encountered in laboratory methods; these methods must constitute a part of the armamentarium by which the older ways of reaching a diagnosis are to be more and more

supplemented. Nothing but praise and admiration is due the patient investigators, who with the real spirit of discovery have toiled at what is often a disheartening task, laboriously searching every pathological condition causing a variation in the body's waste, in its chemistry, its fluids and secretions. They have led the way to vaccine experimentation through the theories of immunity, and they have made easy the knowledge of the presence of certain latent diseases that before could have been only vaguely and imperfectly suspected by the keenest analysis. But their stride is a difficult one to follow and may lead us in our enthusiasm,—to quote Reynolds in the *British Medical Journal*: "To forget that the old methods of examining a patient, conducted by the more or less unaided senses, including that very necessary sense, common sense, are just as much scientific methods as examination by the most elaborate chemical or physical method."

The whole of a man is not the sum of his parts, and the whole of the medical profession is not the sum of its specialties; neither is the knowledge of the sick body to be acquired by the totaling of its laboratory returns. The old standards and old distinctions, however inadequate they may have come to be, must not be dismissed in the desire to do the last new thing.

Workers in the field of Roentgen diagnosis are among the latest experts to appeal to the profession; the earlier assistance that Roentgenoscopy gave in the detection of foreign bodies, the pathological lesions of the body's bony framework and the shadow pictures of the chest, has taken on a new interest with its more elaborate work in connection with the internal administration of bismuth; first, by its demonstration of the presence of certain functional disturbances, notably those of motility and exaggerated sensitiveness; and later with the assumption of its ability to detect anatomic lesions themselves. But difficulties attend positive conclusions; the weight of the bismuth and the mental state induced by the examination are not negligible sources of error; and owing to the fact that lesions of the pelvic organs, alkaloid and other toxemias, and diseases of the nervous system, apart from those associated with the digestive tube or its adnexa may occasion an irregular behavior of the bismuth stream,—the positive diagnosis must often be attended with doubt, and at times a negative finding proves misleading. Those who zealously advocate the use of the x-ray examinations as an aid to diagnosis are frank to confess that in almost the whole of certain cases,—as, for example, duodenal ulcer,—the radiologist's work has been confirmatory, and a definite diagnosis reached by the older methods; and to the same pass has come the once infallible proof of syphilis, the Wassermann reaction. In gastric cancer similar uncertainty confronts us in the results obtained in the search for the early and important suspected cases.

While the confusion that exists in the minds of many as to the unquestionable value of Roentgen diagnosis may lead to a reasonable doubt, a wise skepticism should, in admitting its limitations, recognize its value as an adjunct to other methods in difficult cases, but not as an independent procedure.

The enthusiasm that each new diagnostic method arouses tempts the practitioner to lean too exclusively upon it, to the detriment of his hard-earned powers of deductive reasoning; credulity is his besetting weakness, and he too often accepts, without sufficient evidence or inquiry. But there is danger, too, that the thought of the absolute certainty of laboratory and mechanical methods may lead him to side-step, as it were, the responsibility that a diagnostic perplexity presents; the feeling of doubt may be easily fostered and he may decide to help himself out of his difficulties by the easier path of referring his patient to this or that expert; the eventual waning of his ability as an independent thinker must result. In these days, when the pace of scientific precision staggers the busy doctor with the helpless feeling of incompetency, the thought of one of the requirements of fitness should stand high in all perplexing moments, namely, self-confidence. The words of Emerson in his essay upon "Self Reliance" may very properly and fittingly be recalled: "A man should learn to detect and watch that gleam of light which flashes across his mind from within, more than the lustre of the firmament of bards and sages. Yet he dismisses without notice his thought because it is his... The power which resides in him is new in nature, and none but he knows what that is that he can do, nor does he know until he has tried." "A spur on the head is worth two on the heels." Whole-hearted, independent work contributes something to progress; and the doubts that must arise in a contemplation of the rapidly increasing number of new diagnostic details should not terrorize or stampede the practitioner to a belittling of his ability to select what may seem to him pertinent to the occasion. This ultra scientific century compels us to consider seriously whether all that is sneeringly called empirical must go down before this wave of scientific medical evolution; should this momentum of growth continue, its adaptation to the subject of medical training must result in a questionable efficiency, so vast and complex will its requirements have become; for a given scientific attainment of high degree in any one field of knowledge necessitates an obliteration of all other broader and comprehensive thinking: the specialist confines himself to one realm, and views with disdain or suspicion the older education as obsolete and of little practical utility; yet it would seem that an education based on a too narrow application of purely scientific methods must lead to a neglect of the underlying elements of medical success—anatomy, physiology, pathology—which must be admit-

tedly the tools for intellectual work. In addition, for the practitioner to attempt to acquire and apply accurately the great mass of detailed work resulting from laboratory and mechanical experimentations is futile, because, as has been seen, much of it becomes quickly obsolete as a working asset. Too great an emphasis cannot be put on what has been learned by experience. The practitioner should not permit the lack of acquaintance with newer diagnostic procedures to intensify the many perplexities of his vocation, but should employ a calm attitude of reasoning when to solve and when to refer. We need all the old originality and independence, controlled by an analytical sense of discreet inquiry through others and by laboratory helps.

The world has always demanded the full equivalent for value received, but never more so than today; and while we must be guided by the standard of the times, and the people with whom we are dealing,—the amplification of present-day methods, in reaching a conclusion through expensive eliminating routes, which lead the patient to an outlay of money quite unanticipated, should be carefully considered. Although the public has the right to demand what may be called modern refined methods of diagnosis, and to expect treatment based on scientific accuracy, it is not possible to apply at the home or in the office such painstaking scrutiny to all cases of doubtful diagnosis on account of the expense suggested. It is evident that surgery owes no small part of its success to the fact that within a double decade it has transferred its work entirely from the home to the hospital; where, with the facilities afforded by the latest modern equipment, seconded by the assistance of a house staff well qualified to utilize any of the more intricate and time-consuming aids to diagnosis, it has been able to reach conclusions more nearly correct and to secure proportionate results. And it is probable that the experienced, thoughtful man of medicine should more often follow the example of the surgeon, and secure for his patient at a reasonable hospital expense the refinements for diagnosis that selected cases may seem to require. In this way he will render a service more in keeping with the spirit of the times, and secure for himself an assistance which will enable him to bring a perplexing problem more often to a brilliant solution.

It may be undeniably true that incomplete examination and careless thought, due largely to lack of time, are the cause for the largest class of mistakes that arise in diagnosis; but Cabot's figures have shown that even when a conclusion is reached by the most careful clinical analysis, checked and aided by laboratory findings, which few practitioners can command, nearly one-half are erroneous; similar statistics in the future will undoubtedly show a marked improvement in the imperfections now present, but to many of us these acknowledged limitations may

prove a source of comfort, as well as an impetus to more determined endeavor.

The diagnostic perplexities in modern medicine that must more urgently and constantly assail us than ever before should enlist powerfully our sympathies with the great mass of medical men who occupy the first line of trenches, and receive first the impact of the attack; while the specialist and the expert are necessary to the particular detailed work of the campaign, it is the general practitioner that must bear as yet the brunt of the fight and make up the "line of steel," even as in modern military warfare.

Finney in his address upon the "Standardization of the Surgeon," says of the surgeon, "An error of judgment in diagnosis, or in execution, lack of familiarity with the latest approved methods of dealing with certain conditions, defects in technic, and many other considerations, some of them apparently minor, may decide, and frequently do, between a happy restoration to function or to health, and a life of invalidism; between life and death." The responsibilities that assail the practitioner are not one whit less, although he may not be as directly accountable for the operation where judgment and dexterity are all essential; and while the thought of his standardization may not take on the form of organization for the purpose of reforming his defects, more thought should be given him in offering opportunities whereby he may continue his education in the light of newer advances, and so amplify and direct the continued cultivation of his powers of observation. And there are signs that the physician of the future will demand an opportunity to partake with a livelier interest in the advantages that today accrue to the few who are in close touch with large medical centres.

The serious problem, for those who would in any way standardize the working efficiency of the great numbers of our profession and advance the high character of medicine, must be the problem of continued education after graduation. Books and periodicals are too voluminous for the busy man to digest; and the mind in the variety of its confusing thoughts is robbed of the symmetry of studious analysis; clinics are small and unfortunately benefit only the few that are favored with hospital appointments; our medical societies, associations and clubs provide a certain valuable interchange of thought, or receive didactic instruction from eminent medical gentleman who gladly give of their time and personal endeavor.

We must never lose sight of the fact that knowledge gained through the ear is more truly gained and more surely retained than what we learn from the eye.

But as yet our universities have not provided any plan whereby post-graduate instruction can be extended to any except those fortunately nearby; the Fellow living at a distance is neg-

lected; he cannot avail himself of the present instruction to graduates except under a stress of difficulties which are well known. In some way his opportunities for growth and service should be increased. Recently the Massachusetts Medical Society has joined in the publication of a journal which is to be its literary gift to its Fellows; and it is to be hoped that a near future may see this splendid society, ever serious and foremost in its efforts for medical advancement, formulate some plan whereby didactic exercises, offered in different localities, may stimulate its members to better work and provide a late knowledge of whatever may be scientifically conservative in medical practice. The way would seem to be already opening to the accomplishment of such an idealistic beneficence; for only recently it has become possible for our Fellows, for a most modest fee, to receive for individual analysis or group discussion the records of such clinical cases at the Massachusetts General Hospital as have a completed value from the pathological findings.

Today the thought of university work cannot confine itself to resident student life; the university should not be the place where the student has once studied and received once for all his education; too often the impulse given will retrogress, and suffer loss in its potential value unless continuously cultivated; the kind of study for which it has prepared him may well be enhanced by its fostering care; and in no department more to the public good than in that of medicine.

"Mental laziness" is an easily acquired habit for the tired busy practitioner, and some stimulus is needed to arouse him from his intellectual hebetude; success in practice mitigates too often the pride in exact thought and his ambition may even reach the stage of "getting by" with his professional duties, and declining to become interested in the definite problems that may present themselves. Modern medicine makes it more difficult for the young physician to succeed for several reasons, not among the least of which is the cultivation of laboratory refinements at the expense of the older methods requiring more careful logical reasoning; and having succeeded may make it easier for him to neglect his vantage ground, because of the rapidity of change which always characterizes any ultra-technical enthusiasm. "The race is not always to the swift." Until that time when the whole field of medicine shall be perfectly covered by science, it may be well in daily practice to retain a rational empiricism and at the same time prudently to refrain from attempting to be too scientific. Ovid wrote: "Medio tutissimus ibis."* The public looks for quick results; the busy man of affairs, whose motto is "deliver the goods"; the devotees of society or the latest fad of "advanced thought," have no time to spare in illness; laws or acts of compensation, which apply to certain employments,

* *Metamorphoses*, II, 137.

make no appeal to them; and they demand that our services shall promptly overcome nature's defects and deficiencies, tolerating impatiently a conservative growth. It is a stimulus that men of science feel—it is a whip that tends to develop laboratory research apart from careful clinical coöperation; it results in a tendency to complete therapeutic skepticism and nihilism, and to the lessening of the appeal to the art of healing in favor of the science of the investigation of diseased processes.

We are not assuming that the problems and perplexities in modern medicine are essentially greater than our forefathers experienced; whenever a human problem has arisen, the past has given men who seriously faced the difficulty and secured results which seemed to serve the purpose as well at one time as at another; so that in our thought of progress, tending occasionally to become a trifle vainglorious, we need not indulge too extensively in pity for the ignorance of the old practitioner, who was a doctor, yet could not according to our conception glorify his title with the easily commercialized term "scientific." However, relatively our problems seem more difficult; numerically they obviously increase; but this increase is compensated by a division of the labor. The last century saw the medical thought more constantly directed to the care and cure of the diseased individual; now there is added the care of the public as a whole—preventive medicine in its many aspects, embracing that very important problem, the reduction of the number of those seriously ill at any one time; estimated by Prof. Irving Fisher of Yale as about 3,000,000 people in the United States, one-half of whom are suffering from preventable causes; for although mortality as a whole, and more especially in certain diseases, shows a decrease, there are those who maintain that morbidity has actually increased.

This view is certainly illustrated in the increase of acute diseases of the respiratory tract; whole communities are made miserable, and the feeble and non-resistant seriously menaced, by these endemic or epidemic outbursts of bacterial infection, spread by the tiny droplets of germ-laden moisture, sneeze or coughed from carriers in the presence of others. The number of enteric infections and the more serious of the contagious ones, scarlet fever and diphtheria, that the physician is called upon to attend is lessening, owing to the persistent fight of our public health boards in securing legislative insistence upon the elimination of dangerous sources of dissemination,—notably impure milk. But the problem of the control of these riotous infections of the air passages has secured as yet scant consideration; and the common "cold" continues its supposedly benign existence without "let or hindrance" by the public and with too little appreciation of its possible gravity by the profession.

With the thought of prevention and control,

more especially adapted to the preservation of life in its earlier decades, when susceptibility to bacterial invasion is most marked, has come the consideration of prolongation of life at a time when its economic value is enormous; already recognized by life insurance companies as an asset in their business methods of no little importance, there is a growing tendency among men of affairs to seek for possible defects in the physical economy, which if known and mitigated or remedied, may enable them to lengthen their lives; for it seems to be a fact that our vital organs wear out sooner than did those of our ancestors.

While this phase of practice may have been an incident occasionally in the work of physicians, its application along the broader lines of an exact knowledge of what constitutes normal physical conditions and a healthy state of organs, necessitates a critical survey and balancing of normal and negative findings, no less perplexing than the hunt for the suspected pathological state; and it implies a renewed cultivation of the judicial qualities in medical men that makes their advice and not their prescription so valuable in a community. We are coming to consider and care a great deal for the problems that pertain to the public as a class in standards of living and material well being; and always with the thought that future generations will receive a richer heritage of health than fell to ourselves, to say nothing of the preservation of the human race. Personal advantage and the isolation of the individual welfare must be dominant thoughts and ambitions, but a widening knowledge and experience bring a clearer understanding of responsibilities. The rack of hurrying medical progress need not torture us with its perplexities, if, while entertaining a wise regard for the newer teachings of science and a deep appreciation of men of attainment in their special field of knowledge, we cling more closely to the thought and wisdom born of experience.

We are constantly reminded that this is a wonderful age: its qualifying adjectives are many, and not the least impressive is the one, scientific; implying that all things claiming excellence and merit, must receive the stamp of the investigator in approval before they can be unhesitatingly used; everything is to be viewed in the light of the cold, impassive man of science; but there is danger of making standards too high for practical purposes—above the perceiving level of the public—beyond the absorbing power of the man who is expected to weigh and make application of this scientific evidence.

Perhaps when this generation has gone, the coming generation will demand less of that close trusted relationship between patient and physician which has given a unique charm to our professional life; the efficiency test may prevail to the obliteration of the necessary management of the whims and vagaries of the patient; his in-

telligence and passivity may permit the detailed routine of an exactly applied scientific performance, such as we now cannot, if we would, secure. Until that time comes, the word of sense and sympathy must not be supplanted by the last one upon which science has placed the stamp of approval; and during this rapid evolution of medical progress our duty is simple,—to attempt to think logically and sanely with such humble powers of observation as we may possess.

In the consideration of some of the doubts and perplexities that every conservative physician must entertain, there should be no morbid pessimism about the future; we do a double duty in each problem solved in making as individuals for the continued progress of medicine; yet there should not be a too great readiness to detect disease, lest we become incapable of receiving all the evidence, having our thought concentrated upon some new infallible method of our own or another which may seem to surmount old-time difficulties and give a sense of security and knowledge. While diagnosis is the most essential demand in our work, it should not make us careless of the growing cry for the cure of every condition or disease to which our bodies may be subjected; the important consideration of treatment may be neglected; we take the patient readily and gladly into partnership and discuss volubly the scientific aspect of his case, contentedly feeling that we have vindicated our conclusions beyond any questioning thought. This attitude of what is most essential is from our own view-point; the problem and the accuracy of its solution, while vital in the quest of perfect knowledge when possible and the necessary forerunner of intelligent treatment,—coöperation of the patient and the maintenance on his part of a lively sense of the result to be obtained, while comforting and stimulating to the physician, do not constitute the whole perplexity that confronts the patient; the refinements in methods are of less interest to the subject than their results. His appeal, and his trust in that appeal, should leave but one fixed purpose,—his mental or physical relief; and the downright heartiness of that endeavor requires a sagacity acquired in no one of the physician's many workshops of learning.

We are gradually acquiring through the natural development of the processes of medical growth a system for the scientific management of disease. The past is full of stimulating traditions; the present, filled with the grains of precious wisdom that have been extracted from the mountains of theory and conjecture; and we accept the truth that in the future what we now worship will be swept away in the melting-pot of scientific ardor. But in admitting our limitations, we affirm with greater confidence our optimisms. It is only when harassed and perplexed that men learn; "strength grows out of weakness." The ideal of medicine demands for its consummation, individual exertion and un-

tiring enthusiasm. Each contribution, whether of the laboratory,—from the special research man,—or of the great hospital and private clinics, from the more practical observers and teachers—successful practitioners of well-deserved repute,—or of the storehouse of experience, from the great class of silent, thinking medical men,—each factor is an atom, akin to the body of the tiny coral insect, in the building of the enduring structure of the "Goddess of Medicine."

The poet sings,—

"Grandeur of the perfect sphere
Thanks the atoms that cohere."

And of the cohering elements entering into the structure of medicine by no means the least valuable is the country practitioner, who, alone and remote from all enthusiasm and support, often surrounded by unsympathetic critics, goes ahead and does his work as he sees it.

It is easy to be a soldier when you have a soldier on every side of you; over-courage is born of the crowd; but the yeoman service is his who, enduring—

"Chance and victorious death,
Life and his doom obscure,"

learns the secrets of sickness from his lonely struggle with it.

To support, not suppress, this type of man should be our objective; to assist his patient observations of his patients' symptoms and story with rational laboratory research should be our ideal.

Original Articles.

THE RELATION OF BACTERIA TO THE ETIOLOGY OF SUMMER DIARRHEA IN YOUNG CHILDREN.*

BY ARTHUR I. KENDALL, M.D., CHICAGO.

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THE subject for discussion this evening is one that has stimulated much controversy, and the final solution of the problem is apparently remote. The object of this presentation is to point out certain features of the problem which have caused confusion in the past and to mention briefly certain unusual observations which may have led to erroneous conceptions of the part played by bacteria in the causation of acute diarrheas. To avoid ambiguity at the start, only those severe summer diarrheas will be considered in which the pronounced clinical symptoms are

* Presented before a meeting of Pediatricians of the Middle West, Oct. 29, 1914.

observed to be fever, prostration, vomiting, and, frequently, nervous symptoms, together with mucus in the movements, often associated with pus, or blood, or both. The movements *per diem* are increased in number and reduced individually in amount.

Many theories have been advanced to explain the etiology of these summer diarrheas, some of them very elaborate and comprehensive,—but for purposes of debate the underlying principles of these theories may be reduced to three rather distinct groups. It is to be definitely understood that these three respective theories attempt to explain only the initial cause of the diarrhea in each instance; secondary complications which may arise during the course of the disease are eliminated for the moment.

1. The Meteorological Theory. This theory assumes that high temperatures experienced during the summer months, usually in association with high relative humidity, initiate nervous and metabolic disturbances of greater or lesser severity, particularly in young children, which lead to the train of symptoms just mentioned.

2. The Physiological Theory. According to this theory, dietary indiscretion, or perhaps the temporary inability of the young child to assimilate food, is the primary inciting factor of diarrheal disturbance. This dietary indiscretion, which may be further complicated by secondary, endogenous bacterial involvements, leads to nervous and metabolic disorder, as well as an intolerance for certain types of food, carbohydrates and salts appear to be the more common food elements which lead to this syndrome, according to the most widely accepted of these physiological theories.

Both of these theories—the environmental and the physiological, tacitly assume that the patient is not a source of danger to other children, for there is nothing inherent in either of these theories which would point to infection with exogenous bacteria. Endogenous bacteria do not, as a rule, cause progressive disease from man to man.

3. The Bacterial Theory. This theory, as the name implies, asserts that specific bacteria, or combinations of bacteria, are the primary etiological agents of certain of these diarrheas. The bacterial theory presupposes that a specific organism, or association of organisms, is actually identified before the diagnosis is arrived at. The

patient, according to this theory, is a potential menace to other children.

There is no doubt that each of these theories best explains a certain proportion of these diarrheas, and it is equally probable that combinations of heat, food and bacteria are responsible for many others; furthermore, from season to season, one or another theory may be found to be the more important factor in a majority of the cases under observation. Doubtless, also, as more exact information becomes available, it will be found that sectional differences of opinion which prevail at the present time will be reconciled, and that these differences may be attributed reasonably, in part at least, to actual differences in the material under observation in different places. Indeed, there is strong presumptive evidence that the summer diarrheas seen most frequently in Germany differ in type and severity from those which have prevailed in the past in the large cities along the Atlantic coast of the United States. A very simple explanation presents itself. Cow's milk is a very cosmopolitan children's food both in this country and in Germany; in Germany milk is customarily boiled before it is fed to infants and young children, whereas in the United States, in the East at least, it is not boiled as a rule; in fact, it is only comparatively recently that pasteurization has been generally introduced in this country. Milk is a particularly good vehicle for the transmission of bacteria, and it is a significant fact that the majority of disease-producing organisms which may be thus transmitted through it from man to man are those whose portal of entry is the gastro-intestinal tract. When one recalls that the type of disease under discussion is probably gastro-intestinal in origin, it is not surprising to read that bacillary dysentery and similar diseases of bacterial causation are comparatively rare in Germany; the organisms causing this type of disease are non-spore-forming, and, therefore, readily killed by the boiling temperature to which milk is subjected there. On the contrary, bacillary dysentery and similar infections are, or were, relatively common in the eastern part of the United States, where in the past the "dip tank" no doubt contributed a formidable amount of infection to and through the poorer classes, whose poverty necessitated the purchase of small amounts of milk at one time. It should be remarked parenthetically that the more general pasteurization of milk and the activities of the Infant Welfare

Stations have been accompanied in this country by a marked reduction in the incidence and severity of this class of disease, which no longer appears endemically summer after summer as formerly, but rather tends to appear sporadically. The bacterial diseases transmissible through milk in Germany would theoretically be caused by spore-forming bacteria, and it is a significant fact that the most common treatment of severe feeding cases in that country, administering Eiweiss Milch, is essentially the one which experience has shown to be efficacious in the United States for the treatment of at least one perfectly definite infection by a spore-forming bacillus which is transmitted in milk—the “gas bacillus” (*B. aerogenes capsulatus*). Indeed, cases are on record where infection with this organism has developed in hospital wards following the administration of lactose, which was found subsequently to contain a large number of spores of the “gas bacillus.” This is not to be construed as a suggestion that all the feeding cases and diarrheal cases seen in Germany are due to the gas bacillus,—probably the reverse is true in the majority of cases.

Returning once more to the discussion of the theories of summer diarrhea, there are occasional cases of sudden severe illness, frequently with a temperature of 102-103°, marked prostration, vomiting, and diarrhea, which respond promptly and favorably to suitable changes in environment, together with the withdrawal of all food for 24 hours, if these patients are seen in time. These cases are encountered not infrequently in excessively hot, humid summer weather; their prompt response to proper changes of environment suggests strongly that the chief etiological factor is environmental, namely, heat and humidity. Ordinarily these cases are not numerous.

Dietary indiscretions are undoubtedly far more common causes of summer diarrhea. Uncomplicated cases, provided they are seen early, usually show decided improvement within 24 or 48 hours following the withdrawal of all food; the temperature abates, and the acute symptoms subside, although they may, and not infrequently do, develop into more or less chronic “feeders” with persistent abnormal movements.

The severe bacterial infections differ from the preceding types in one important particular, so far as fever is concerned. Even if the patient is

seen in the early days of the disease, the fever persists for several days, in spite of the withdrawal of food, and the substitution of a proper environment. The patient usually becomes progressively worse, for a time at least.

The most annoying physical features of severe diarrheas of bacterial causation is the similarity of clinical symptoms elicited when widely different types of bacteria are the etiological agents; the general clinical response to infection on the part of the patient gives little definite evidence of the nature of the invading organism. The symptoms overlap, as it were, and for this reason it is necessary to resort to other than purely physical signs to establish the correct bacterial diagnosis. This is particularly true of severe infections; mild infections may so closely simulate the symptoms of dietary indiscretion, of thermic fever, that a definite diagnosis is frequently not made.

This leads to a very important question: How differentiate the three types of diarrhea, and what value has a bacterial diagnosis in this connection? A bacterial diagnosis presupposes the services of a well-equipped laboratory, which is not always available. In the past, furthermore, a bacteriological diagnosis, even if it were made properly, has done no more than to catalog certain bacteria which are presumably the cause, directly or indirectly, of the disturbance. The chief value of such work has been to furnish names for certain types of disease, thus adding definiteness to the diagnosis, and to warn the clinician that the patient is a potential source of danger to other individuals. Thus the net result of such an examination is diagnostic and preventive; the all-important factor to the patient—the suggestion of a definite line of treatment—which is at least theoretically desirable—is not touched upon. Undoubtedly this paucity of information has led many clinicians to frown upon the laboratory, they believing with a great deal of reason that the laboratory examination is not worth the trouble expended in obtaining it, and the tendency has been for empiricism to replace laboratory investigation. It is a noteworthy fact, however, that empiricism, based upon keen and extensive observation, very frequently leads to the same general action as would the more direct laboratory investigation; indeed, the practice of medicine has been largely developed by this empirical method.

There are certain peculiarities in the seasonal distribution of types of bacteria which cause summer diarrheas, which have tended to restrict empiricism, at least as it may be applied in the treatment of the more severe cases. Instances of this are well known; at one time or another every combination of milk proteins, milk sugar, whey, and cream have been used with varying success in the treatment of severe diarrheas one season, only to fail in whole or in part the next season. A specific example may make this assertion more definite. A large series of sick babies were treated indiscriminately with a preparation which was potentially buttermilk during an entire summer. The cases were not selected other than that they were all of the diarrheal type—mild or severe. At the end of the season these cases were collected and summarized, and the information gleaned from this treatment was placed on record for the benefit of those interested in the subject. The report was accurate in every respect and striking enough to induce others to try the same procedure the following summer. The results obtained the second season were disappointing, almost without exception. How is one to interpret this apparently paradoxical situation? A very direct and satisfactory explanation presents itself when the bacteriological aspect of these cases is unfolded. It has been stated that different types of bacteria may elicit the same general clinical response in young children—hence the similarity of symptoms observed during the two years is plausibly accounted for. The predominating organism isolated from the patients the first summer was the "gas bacillus," an organism which is more active in the intestinal tract when carbohydrates are present; the activity of the gas bacillus is considerably restricted, however, when protein replaces the carbohydrate of the diet. The addition of lactic acid to the diet appears to reinforce the favorable results obtained by feeding protein and restricting sugars. Buttermilk, properly prepared, combines the advantages of a protein diet and lactic acid. The patients seen the next summer differed bacteriologically from those of the first summer in that the dysentery bacillus was the dominant organism encountered, not only in the severe diarrheas, but in some mild cases as well. The "gas bacillus" had largely disappeared; only a comparatively few sporadic cases were found. The dysentery bacillus is habitually a proteolytic organism; it produces its poison, according to various investigators, chiefly, or only, in the absence of utilizable sugars. The presence of utilizable sugar in the intestinal tract tends to change the metabolism of the dysentery bacillus in such a manner that these poisons are either not produced, or produced in lesser amounts. Buttermilk has little or no influence in restricting the activity of this organism; indeed, buttermilk appears rather to aggravate the conditions in the intestinal tract, particularly in the more severe cases.

This explanation of the success and failure of buttermilk, as the type of dominant infecting organism shifted in two successive years, is probably not unique; it is possible that other, similar observations may be made in the future. It might be objected that the gas and dysentery bacilli, respectively, were not necessarily distributed seasonally throughout the country as they were in the East, thus weakening the argument somewhat. This objection cannot be definitely answered pro or con with our present knowledge, but for the relatively limited area in which this observation was made the explanation appears to be a valid one. In any event, it is obvious that the etiology of these diarrheas for the two successive years described could hardly be attributed to dietary indiscretion alone. If such were assumed to be the case, one would be forced to assume that there may be among young children a seasonal food idiosyncrasy which in the instance cited resulted in a rather general carbohydrate intolerance one year and a corresponding protein intolerance the next year.

A seasonal distribution of bacterial types appears to have been unrecognized hitherto, at least in association with diarrheas in infants, and a brief discussion of studies along this line made during four consecutive summers on the Boston Floating Hospital will illustrate more clearly how the dominant type of organism found there in cases of summer diarrheas varied from year to year.*

During the summer of 1910 by far the greatest number of severe diarrheas which entered the wards were those from which dysentery bacilli, either of the Shiga or Flexner type, or both, were isolated.

TABLE I.

Year.	Total Cases Examined.	B. Dysenteriae Shiga and Flexner.	B. Aerogenes Capsulatus.	Streptococcus.	B. Morgan.	B. Paratyphosus Alpha and Beta.	"Slimy" Bacillus.	B. Proteus.	B. Alcaligenes.
1910	52	39	22 ¹	7 ²	4	beta 2	0	0	1
1911	146	18 ³	33 ⁴	78	16	alpha 1 beta 10	2	8	5
1912	135	5	53 ⁵	6	13	beta 4	31	2	3
1913	457	35 ⁶	53 ⁷	5	29	beta 8	59	2	4

¹ 293 cases examined: 6 normal, 2 watery stools, 14 blood, pus and mucus.

² Organisms also found in variable numbers in 60% dysentery cases.

³ 3 undoubted carriers—no gastro-intestinal disturbance.

⁴ 283 cases examined;

⁵ All showed blood, pus and mucus in stools: majority of cases severe.

⁶ 18 carriers—mild diarrhea.

⁷ 11 severe cases; remainder symptoms mild.

* This great charitable institution draws its patients from the poorest and most crowded parts of the city; hundreds of cases are treated each summer, and a majority of the cases are severely or even desperately ill. Many patients have died as they were carried across the gang-plank, or shortly after they entered the wards; the little patients are only too frequently brought to the hospital so late that nothing can be done for them. The mortality from bacillary dysentery during "bacillary dysentery years" has been from 35 to 50% of all cases diagnosed.

In 1911, although the cases were apparently equally sick and the general clinical picture was about the same, dysentery bacilli were comparatively rarely found in the movements; streptococci, on the contrary, were very abundant. Pure streptococcus infections had not been met with in 1910. The sequelae of the severe diarrheas in 1911, furthermore, were those which would suggest a streptococcus etiology: general septicemia, acute nephritis, involvements of the middle ear, two cases of perforation, and peritonitis.

In the summer of 1912 a new organism was dominant, although occasional sporadic cases had been met with during the two previous years. This organism was *B. aerogenes capsulatus*, or, as it is more popularly called, the "gas bacillus." Typical severe gas bacillus cases present a clinical picture which is strikingly like the syndrome of true bacillary dysentery, but with this very important distinction. Sugars are not only well borne in dysentery cases; they appear to be of some material assistance in tiding over the sick patient. If the same sugars were fed to patients suffering from "gas bacillus" diarrhea, which, it will be remembered, present the same general clinical syndrome, it will be found that far from being well tolerated, these sugars are distinctly harmful. Following the administration of sugar to such patients, the temperature is rapidly increased, only to fall slowly to its original level when the sugar is withdrawn. That is to say, as desperately sick dysentery patients are intolerant of protein, so desperately sick "gas bacillus" patients are intolerant of carbohydrates.

The following year (1913) another organism, belonging to the capsulated group of bacilli, made its appearance. This organism appeared to be far less active in producing severe diarrheas than were either the dysentery bacilli, the streptococci, or the gas bacilli, and the general run of diarrheas this particular season was noticeably less severe in character than those met with in previous years. These capsulated bacilli were found in a very large proportion of the diarrheas seen in 1913. These bacilli, furthermore, were found to be rather widely disseminated in nature during that summer, not only in the intestinal tracts of babies, but even in certified milk, where they formed at times from 60 to 75% of the total bacterial count of such milk; in the majority of instances this bacterial count was within the 10,000 limit standard imposed in Boston. It was noticed that diarrheas actually developed in the wards when this milk was fed; these capsulated bacilli were invariably found in the movements. The simple expedient of boiling the milk, however, not only prevented further development of these cases, it also appeared to help materially in treating the cases which entered the hospital. The assumption was that the capsulated bacteria did not readily acclimatize themselves to the intestinal environment.

The question is not infrequently asked, how does one know that dysentery bacilli, strepto-

cocci, gas bacilli, or capsulated bacilli are the probable causes of these diarrheas? The evidence in the case of the dysentery bacillus is fairly convincing. Tremendous epidemics of bacillary dysentery have occurred in Japan in the past, and a few laboratory accidents are on record in which laboratory workers have accidentally swallowed dysentery cultures and have subsequently developed typical cases of bacillary dysentery. There is a certain amount of evidence also which would indicate that children have developed bacillary dysentery in hospital wards apparently from other patients. More direct evidence is furnished by a few cases from whom the dysentery bacillus has been isolated directly from the blood stream before death. At least three authentic cases are on record. Finally, at post-mortem examination, the lesions of bacillary dysentery are characteristic and agree in essential details with those observed in the fatal cases in Japan, and the serological reactions are specific and characteristic.

The evidence pointing to the streptococcus as the etiological agent of one type of diarrhea is somewhat less direct. Finding the organisms in unusual numbers in the movements unassociated with other pathogenic bacteria, and the complications, particularly septicemia, nephritis, and middle ear infections, in which the streptococci are recovered from the blood stream or from internal lesions, furnish the principal evidence. It should be remarked parenthetically that these complications are usually not found in dysentery or gas bacillus diarrheas, although streptococci are undoubtedly present, frequently as secondary invaders, in true bacillary dysentery infections. The post-mortem lesions of streptococcus diarrheas are quite different from those of bacillary dysentery, although the symptomatology is much the same in the severe cases.

With respect to the gas bacillus, a few post mortems that have been obtained did not exhibit intestinal lesions which suggest either those of bacillary dysentery, or streptococcus infection. The striking macroscopic lesion appears to be for the most part a necrosis of the solitary lymph follicles of the intestinal tract, but these lesions are so limited that one wonders where the large amounts of blood, pus and mucus, which are a feature of the movements of these cases, originate. One of the most striking physical features of a gas bacillus infection is the curious and usually definite response on the part of the patient to the feeding of sugar. The response of gas bacillus cases to protein diets, including buttermilk and Eiweiss Milch, brings them into prominence in comparison with the experiences of Germany and parts of the United States. The gas bacillus is one which thrives on carbohydrates, and its activity is greatly increased by the presence of sugars. Consequently, it is not surprising to find that babies having well-defined gas bacillus diarrhea are harmed by feeding of sugars. The clinical manifestation of this result is a rather prompt and decided rise in tempera-

ture. The withdrawal of sugar and the substitution for it of protein, or, better, buttermilk, which contains considerable amounts of lactic acid, not only tends to bring the temperature back to a point approaching normal, but also to bring about a rather marked and comparatively rapid improvement in the symptoms. It is worthy of note in this connection, furthermore, that the gas bacillus which thrives on carbohydrates in the intestinal tract does not produce symptoms of toxemia in uncomplicated cases. Its effect on the patient in this respect is markedly different from that of the dysentery bacillus in which toxemia is a prominent factor. The effects of the severe toxemia, which is a feature of severe dysentery cases, persist after the cause of the toxemia is removed; many of these patients are unable to rally and eventually die from the effects of this toxemia in spite of treatment. The line of demarcation, clinically, between toxemia and extreme prostration is not sufficiently noteworthy to make this a very important diagnostic point, particularly in young children. It might be remarked parenthetically that evidence is accumulating which would indicate that the gas bacillus may be a more important organism in producing disease than has been generally suspected. It was first recognized as the cause of gaseous phlegmon, but evidence is available now which would indicate that at least in certain years it is a potent factor in the production of severe gastro-enteritis, not only in children, but in adults as well, and that in adults particularly it may lead to chronic intestinal disease, which may be accompanied after considerable periods of time with symptoms suggesting arthritis. The organism in a somewhat modified state of pathogenic activity has been actually isolated from at least one case of middle ear infection and from a case of chronic hypertrophic tonsillitis.

The gas bacillus is ordinarily regarded as an organism which is invasive, and the gaseous phlegmons referred to above are striking examples of such invasion following traumatism. Their activity in the intestinal tract rarely, if ever, leads to general systemic invasion. A certain amount of indirect evidence in favor of this view is afforded by the intravenous or subcutaneous introduction of dextrose into the body. If such a sugar is *fed* to the patient, it meets the gas bacilli in the intestinal tract with an almost immediate response on the part of the patient, shown by a rise in temperature. Sugar introduced *parenterally* into the body does not produce such a rise, even though large numbers of gas bacilli are active in the intestinal tract.

The discussion so far has related chiefly to the bacteriological diagnosis of certain types of summer diarrheas, and the evidence presented in connection therewith has related to the clinical and pathological features of these cases, which appear to confirm these opinions. An explanation of the seasonal alternation of dominant bacterial types is not so readily accounted for. Whole-

sale active immunization of the population from year to year could hardly explain the facts, for many of the patients under observation each summer were less than one year of age.

It is necessary to turn for a moment to the natural history of disease for a possible explanation of these alternations of bacteria. From time to time there have occurred world-wide pandemics of certain bacterial diseases. One of the most noteworthy of these is that great pandemic of influenza which swept over the world some three decades ago. This pandemic was a very widespread one with many fatalities. It will be remembered that it appeared first in Russia, it swept west to the Atlantic seaboard, appeared some two weeks later in the eastern Atlantic cities, crossed the American continent, crossed the Pacific to the Orient, and finally came back to Russia. In any geographical area the disease appeared suddenly and disappeared with comparative rapidity. It left in its wake sporadic cases which, however, for the most part have never become foci of new pandemics or epidemics. Rather, the residual organisms have become "opportunists," as Theobald Smith has expressed it, not producing acute epidemic disease, but appearing for the most part in sporadic cases or as secondary invaders. Pandemics are not very common.

Passing to diseases which are endemic, as typhoid fever, it will be found that there is a tendency for typhoid to become epidemic during certain years, that is to say, at irregular intervals typhoid fever increases either locally or generally. This same generalization is applicable to all endemic diseases, except the slow-growing diseases, as tuberculosis and leprosy. All endemic diseases, in other words, and those diseases which occasionally become pandemic, tend to wax and wane. More and more attention is being paid to the residual sporadic cases and bacillus carriers which are left in the wake of these epidemics, as it were, and which may be potent starting points of fresh outbreaks. Many instances are on record where such carriers have become foci for occasional subsequent epidemics, which at times have reached considerable proportions. Carriers do not necessarily spread disease.

The experiences with the summer diarrheas in Boston would suggest that there may be a somewhat similar epidemic tendency, a tendency for certain organisms to be dominant at one or another year. It was stated, for example, that in 1910 the dysentery bacillus was by far the most frequent organism found in severe diarrheas of children. In 1911 but few dysentery cases were found and the streptococcus became dominant. In 1912 neither dysentery bacilli nor the streptococcus were prominent, but the gas bacillus appeared to be the more important factor. And in 1913 dysentery, streptococcus, and gas bacillus cases were few in number and sporadic, while the capsulated bacillus appeared to be the most common etiological factor in the diarrheas.

There is one other feature of this epidemic tendency which deserves mention. It has been observed that late in the summer the type of organism met with in the diarrheas shifts somewhat, and the observations of four years' duration would suggest that the organism which will be dominant the next summer may, and not infrequently does, anticipate, as it were, the fall before, appearing somewhat abruptly in considerable numbers in atypical diarrheal cases as the season closes.

It is a well-recognized principle of epidemiology that the same organism does not produce acute disease year after year—experience has shown rather that epidemics are relatively short-lived, and that inter-epidemic periods are characterized as a rule by sporadic cases. The same explanation suggests itself in connection with the sequence of bacteria which appear to be causative agents in severe summer diarrheas. Although these diarrheas are of seasonal occurrence, the organisms associated with them do not reappear individually in epidemic proportions each year, but rather give way to other bacteria. It is impossible to predict the interval which will elapse between successive outbreaks of the same organism; the environmental conditions which may play a part in determining these outbreaks are also unknown. The reservoir from which these bacteria arise during epidemic years, and to which they may return to gather a fresh impetus as the outbreak subsides, is unknown, and the conditions which arouse these bacteria to activity are also unknown. Similarly, lobar pneumonia may be so prevalent at one or another year as to be regarded, and justly so, as epidemic; no one doubts the etiological importance of the pneumococcus in lobar pneumonia even when it is remembered that typical pneumococci are found in fully 30% of healthy throats, as "opportunists," during interepidemic years. Diphtheria bacilli are found in about 2% of healthy throats; this organism exhibits the same epidemic tendency as the pneumococcus, and strains which produce fully potent toxin may be isolated from mild sore throats, or from apparently healthy throats.

Carriers may be very important in this connection; an unexpected type of carrier has been met with in young children. Twins, aged six months, entered the Floating Hospital early in July, 1912, a year which was not a "dysentery year." These twins were not acutely ill; they were clinically mild feeding cases, and it was by accident that their movements were studied bacterially. During the eight weeks they were under observation one twin consistently harbored Shiga bacilli, the other twin Flexner bacilli. Neither gave evidence of bacterial disease. These patients would be regarded as unusually mild cases of bacillary dysentery when the facts are reviewed, and doubtless many similar cases would be discovered were careful systematic search made for them. The important point to remember is that precisely similar conditions may prevail

when any of the bacteria mentioned above "anticipate" the fall before the acute summer outbreak occurs. These atypical cases may provide a connecting link which sharply focuses the attention of the clinical and laboratory branches upon just the type of patient which in the past has led to confusion. In other words, the frank bacterial infection and the undoubted feeding case usually are recognized; the study of the doubtful and a typical case will be the most illuminating.

Whatever the final solution of the problem of the etiology of summer diarrheas may be, posterity alone can tell; the various theories will then be evaluated according to their worth, and the respect with which the present-day theories are regarded then will depend not only upon the results attained, but also upon the nature of the evidence on which these theories are based.

THE CLINICAL USE OF THE WATER MEAL IN DETERMINING THE SECRETORY AND MOTILE POWERS OF THE STOMACH.

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In an editorial in the *Journal of the American Medical Association*, No. 1, 1915, on water drinking, reference is made to the work of Carlson, Orr and Brinkman, as well as Bergeim, Reh-fuss and Hawk, on the direct influence of water in stimulating the gastric juice in the human stomach. From this we learn that water alone may induce a gastric juice whose acidity may be about 100 in less than twenty minutes after stimulation, during which time practically all of the water enters the intestine. They found that as much gastric juice was secreted, measured by its acidity, as after the Ewald test breakfast. Therefore, they claim that the water meal may be substituted for this. At the same time, when given on an empty stomach, one can demonstrate the presence of any food residue remaining from the previous day. Increased peptic power also follows the use of water.

They found that 500 c.c. of water leaves the stomach in ten to twenty minutes, and that 225 c.c. of gastric juice have been obtained from the drinking of only 50 c.c. of water. In their opinion small quantities of water produce greater stimulation than larger, and also the stimulation lasts longer. From their experiments, they consider that the acidities of 40 to 60, which are commonly accepted, are too low, and that in perfectly healthy individuals the acidities ran from 50 to 120, with an average of 77.

Based upon these experimental considerations, the clinical use of this water meal has been made by me in the men's medical clinic at the Boston Dispensary, and in the gastro-intestinal clinic at Mt. Sinai Hospital. The custom was to ask a patient to take a meal, the evening before, of meat, potato, bread, butter, rice and raisins, and then come to the clinic the next morning fasting. There 350 c.c. of water were given the patient and the contents of the stomach removed twenty minutes later, the extreme limit at which these authors claim that the water given has left the stomach.

The superficial advantages of this method were readily recognized: bread is not always available for the test breakfast, but water, of course, is. We can never rely on the time, if patients are allowed to take their bread at home and then come to the clinic; while, if taken in the clinic, a wait of 45 to 60 minutes is too long in a busy forenoon.

Water, too, as remarked by the before-mentioned authors, allows one to see readily whether there is any residue left from the Riegel meal.

This method, also, avoids a second introduction of the tube, which is necessary, if we first attempt to find food remnants in the fasting stomach, and then give the ordinary test breakfast.

Lactic acid, blood and bile are also much more readily detected in the absence of a mass of partly digested food.

The results of these examinations will be given as follows in a short table where the age, chief symptoms, acid values and diagnosis are included in parallel columns; in which we will first consider the functional forms of indigestion, which, as far as we know, are not ordinarily accompanied by marked changes in the secretory

and motile powers of the stomach; and then in a second table we will consider those forms which present a distinctly pathological process.

As is well known with the Ewald breakfast, the amount, which is ordinarily obtained, varies from 30 to 100 c.c. This factor, however, is of comparatively little value for several reasons; among these is the inability to remove all of the gastric contents either because the end of the tube is not below the level of the fluid or the gastric walls are in a state of myasthenia and do not possess the contractile force sufficient to eject the contents.

In my experience, a change from the erect to the supine position, helps but little. A bulb offers considerable aid when the stomach walls are weakened, but is, of course, of no assistance when the end of the tube does not reach below the level of the gastric contents.

When we compare, however, these amounts with those mentioned as a standard for the Ewald meal, we can see but little difference.

When an excessive amount is found, it may be attributed, of course, to two factors, either a hypersecretion in which the acid factors would be maintained or possibly increased, or to a lacking motility in which they would be diminished, owing to the retention of the original water taken into the stomach. The experimental evidence which we have deduced would show that a normal stomach empties itself of the water in twenty minutes; and, in these cases, when the amount has been found to be large, the acidities are maintained so that there is no probability of a retention of the original water.

This group includes apparently cases in which the secretory power of the stomach is not modified necessarily; such are ptoses, myasthenias, cholecystitis and constipation; hence it would

Name.	Age.	Chief Symptoms.	Amount.	Acid. Values.	Diagnosis.
M. Z.	20	Distress, immed. P. C.	50	13 and 19	Cong. visceroptosis.
B. G.	45	Acid ructus.	30	22 and 28	Gastroptosis.
M. S.	34	Constipation	30	21 and 39	Gastroptosis.
M. S.	40	Pain P. C. Belching.	30	23 and 43	Myasthenia gast.
G. F.	50	Pain 2 hrs. P. C. Belching.	40	21 and 53	Cholelithiasis, M.G.H.
W. B.	51	Urate deposits, urine.	115	16 and 22	Myasthenia gast.
H. T.	32	Constipation	20	16 and 32	Gastroptosis
J. R.	34	Distress 2 hrs. P. C.	52	24 and 29	Gastroptosis
J. W.	60	Gnawing pain 4 hrs. P. C. Cachexia	25	30 and 45	Arteriosclerosis
A. L.	32	Constipation	60	10 and 15	Gastroptosis
J. C.	60	Pain under R. C. B., mass.	93	25 and 32	Cholelithiasis, P.B.B.H.
H. R.	29	Cramps in Ep. 4 hrs. P. C.	75	14 and 22	Gast. neurosis
S. C.	35	Pain 30 min. P. C., belching, food relief	40	20 and 30	Gastroptosis
R. W.	46	Nausea and burning in epigast. ...	10	16 and 24	Gastric neurosis
R. Z.	44	Constipation	7	25 and 46	Gastroptosis

seem that we may take these acid values as a standard for the normal. True it is that no well person comes to a clinic for treatment, but many patients have vague gastric symptoms when no test will show any departure from the normal stomach.

The average, then, of these acid values, when calculated, is found to be 19 and 31, to be accurate, or, for comparison, may be regarded as 20 and 30.

When we compare these with the usual 30 and 60, as given for the Ewald breakfast, we find them distinctly less, instead of equal or greater, as was found by the authors quoted. The variations, however, of 15 to 53, are equally as great. Schuetz gives the difference between the free hydrochloric and total acidity, normally, as 20. Here, as would be expected, the average difference of 12 is much less. Two factors account for this: the absence of the neutralizing effect of protein and the salts of the bread. The difference which we actually do find, where no residue is present, depends on the mucus. This can readily be seen when we note the insistency with which the acid clings to floating masses of mucus when we attempt to neutralize them, reddened by Toepfer's reagent, with tenth normal sodium hydroxide.

We also note with this test meal a much greater frequency of the presence of bile. Apparently the gastric juice alone is not as effective in keeping the pylorus closed as is food. This may also be an explanation of the reduced acidity, as the duodenal contents apparently come through more easily.

Another explanation of the limited acidity may be the insufficient stimulus of the water.

We now come to those cases which present marked variations, in the amount of gastric contents and acid values, from those previously considered. They also offer unquestioned pathological changes in the stomach, which were demonstrated not only by the changes in gastric secretion and motility, but also by all the other means of diagnosis which we have at our disposal, including examination of the stools for occult blood and radiograms.

We will consider first three probable cases of ulcer which are designated as duodenal, and not gastric, because of the late appearance of pain

after food is taken, and as ulcers rather than pure nervous hypersecretion, if such exists, on account of the presence of occult blood in the stools. There is a marked increase, as noted, in the amount in two cases to 110 and to 180; while none is observed in the other, 50.

There is also an increase in the acids of two cases and not in the other. When, however, we find the product of the amount withdrawn and the total acidity as factors, which is allowable, since practically all of the total acidity is due to hydrochloric acid, we find that this result is increased in all cases above what is usually found.

It seems a matter of indifference whether we find a normal amount with high acid value or a large amount with increased or normal acid value: the interpretation is always the same—hypersecretion—when the product of the factors is more than 2000. In these deductions some may object that there is gastric juice in the stomach when the water is given, and that the former is not due to the stimulus of the water, but the significance is the same as continuous secretion is but an exaggerated form of hypersecretion.

Two of these cases show an absence of hydrochloric acid; in other words, are typical achylas. Associated with them, too, are the small amounts of gastric contents removed, as is also found when the Ewald meal is used. Whether in these particular instances bread would prove a greater incentive than water alone, was not determined; that is a matter for further investigation. The largest amount of content found, 250, was observed in connection with food residue showing an apparent pyloric stenosis.

The cause of this stenosis was not determined, but did not appear to be malignant. In the only probable case of gastric cancer, though no mass was felt, the amount was large, 100; but the acids fell to 9 and 15 while lactic acid was present.

After this comparatively limited use of the water breakfast, it would seem to serve all the needs of a clinic for establishing secretory and motile powers of the stomach.

This report, nevertheless, is to be regarded only as a preliminary one, and its employment will be continued until its worth is disproved or firmly established.

Name.	Age.	Chief Symptoms.	Amount.	Acid. Values.	Diagnosis.
H. K.	34	Pain and vom. at night.....	50	38 and 48 Occult B.	Duod. ulcer
W. L.	39	Hung. pain, vom. and pyros.....	110	15 and 32 Occult B.	Duod. ulcer
R. A.	30	Distress and vom. P. C. direct...	30	0 and 9	Achylia gast.
J. A.	43	Stom. cramps, ructus.....	250	0 and 52 Residue	Ectasia
G. P.	42	Nausea and vom. early A.M.....	10	45 and 60	Hyperchlorhydria
E. P.	27	Precord. distress, P. C.....	10	0 and 5	Achylia gastrica
F. M.	50	Distress P. C. Cachexia, loss wt.	100	9 and 15 Lactic +	Gast. cancer
J. L.	21	Pain 4 hrs. P. C.....	180	34 and 44 Occult B.	Duod. ulcer

POSTERIOR GASTRO-ENTEROSTOMY BY EXACT MEASURE.*†

By M. P. SMITHWICK, M.D., BOSTON.

For seven years past I have done posterior gastro-enterostomy occasionally, always following as closely as possible the conventional technic, but never wholly without apprehension lest there be some degree of kinking from anastomosing parts which wouldn't lie quite easily and naturally together. As I wasn't troubled over other possible mishaps, it seemed to me that, whether my fear of kinking was reasonable or unreasonable, it should be possible to remove it by some system of accurate measurement. From time to time I have tried to put such a scheme in practice but never satisfactorily until my last three (now four) cases.

To distinguish it from "no loop" and "short loop" let us style as normal the operation in which stomach and jejunum are anastomosed as they lie easily together without tension, the length of jejunum being that required for the anastomosis without suspending either organ on the other.

According to the conventional technic, one embraces in a clamp a portion of the jejunum high—as high as possible for a no-loop operation and within three inches of the top for a short loop operation. He embraces in another clamp a fold of posterior stomach wall extending from a selected point at the bottom of the stomach upward, in whatever direction he wishes the jejunum to take and anastomoses the two portions. The point is that a portion of jejunum pre-determined or selected by guess is anastomosed to the portion of stomach thought to be most favorable for drainage, but without any accurate measurement to determine whether in the given case the latter will fit perfectly to its outlet. This veritable missing link in the technic may account for some of the "inherent defects" of the operation.

In the plan which we are trying to follow, the posterior wall of the stomach having been exposed through a generous opening in the mesocolon, the omentum, transverse colon and stomach are held in the left hand with the left thumb in the slit in the mesocolon. While the upper part of the jejunum in its natural position within the abdomen is straightened out by the right hand in the desired direction, the exposed posterior wall of the stomach is laid upon it without any tension in any direction. At the point where the posterior aspect of the greater curvature of the stomach comes in contact with the jejunum a stitch is placed in each organ. A second stitch is placed in the jejunum three inches higher up. All three stitches are cut long. The points of artery clips on the first two

stitches are brought together and another stitch is placed in the stomach where the upper stitch on the jejunum comes in contact with it. If one prefers he can make the lowest part of the stomach as it lies within the abdomen or some other point along the greater curvature the starting point for this determination. According to the first plan one decides on the direction of the jejunum, and then the proper site for the anastomosis is the lower three inches of the line of contact of posterior stomach wall and jejunum. If this direction doesn't allow enough jejunum, make it more oblique. If an oblique position gives more jejunum than desired, make it more vertical. If there is no special reason for giving the jejunum a particular direction, one corresponding to the opening in the mesocolon may well be chosen as most convenient. According to the second plan one selects a point on the stomach wall which is to be the lower end of the anastomosis, and makes the jejunum conform to that without tension. The basic idea of this scheme is accuracy. It is intended to eliminate all inaccuracies of application, including torsion, flexion, and also suspension of stomach on jejunum, or the opposite. In cases without obstruction before operation, faulty application sufficient to cause symptoms of blocking should cause them at once. At least a part of the late symptoms of blocking commonly attributed to the inherent defects of gastro-enterostomy are due to faulty application, these symptoms appearing as the original obstruction disappears. In the same case a no loop operation may be either a perfect application or a suspension of the stomach or jejunum, according to the direction given the jejunum. A perfect application insures the proper length of jejunum, but that the converse is not true one can easily convince himself. By following this scheme advocates of the no loop operation can at the same time avoid torsion, flexion and suspension. Without some system of measuring, one cannot entirely exclude one or more of the varieties of misapplication. No detail that makes for accuracy should be omitted. This applies particularly to cases without obstruction or those in which as a result of operation the obstruction may disappear.

Of the three (now four) cases in which this plan was followed, each was x-rayed before operation and in each instance we found at operation frank duodenal ulcer confirming the pre-operative diagnosis. In the first, a case of Dr. G. C. Mahoney of Somerville, operated on Oct. 22, 1914, with Dr. Mahoney's assistance, and in the third, a case at the Soldiers' Home, operated on Dec. 31, 1914, the measurement was begun by deciding which direction the jejunum was to take. This gave a two and a half inch jejunal loop in one and none in the other. In the second case, operated on Dec. 28, 1914, with Dr. E. P. Starbird's assistance, the point where the greater curvature of the stomach crossed the jejunum as at first held was within three inches of the top of the jejunum so that we then se-

* Abstract in part of a paper read February 11, 1915, at a clinical meeting of the Mt. Sinai Hospital under the title: "Notes on the Technic of Posterior Gastro-Enterostomy, and on the Study and After-care of Gastro-Intestinal Cases with Symptoms of Obstruction."

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lected another point on the greater curvature (in this instance the lowest point) which would allow three inches of jejunum for anastomosis when the latter was straightened out to that point without tension on either organ. In the fourth case, operated on February 27, 1915, with Dr. Starbird's assistance, the abdominal wall was very thick, and for ease of manipulation a point on the greater curvature was selected nearer the pylorus than would otherwise have been chosen. This gave more jejunum and still was the correct length to reach without tension, the point selected.

It was very interesting and rather surprising to me to realize that even in the first case in which this scheme was tried my fear of a misfit had entirely disappeared. We are keeping detailed records of all symptoms of stasis from the completion of the operation as a basis for determining later whether in a series of cases this plan is an aid toward uniformly perfect results.

PROGRAM AND DIRECTIONS FOR THE MENTAL EXAMINATION OF ASOCIAL, PSYCHOPATHIC AND DOUBTFUL SUBJECTS.

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(Continued from page 821.)

THE HEALY TESTS.

Most of these tests are treated very fully in the descriptive monograph,⁷ but for convenience some of the principal facts in regard to them are summarized here. The age limits given are only approximate.

I. For young children (4 to 8 years), and subjects of doubtful mentality. The minimum number of moves is eleven. Usually not more than five minutes need be allowed. The character of the errors is more significant than the time. Several distinct levels of performance are found.

1. The pieces are put on the board, but no effort is made to fit them into the holes.

2. The blocks are put into the holes, but without trying to fit them. Sometimes they are put in obliquely, or on edge.

3. The subject tries to fit block to hole, but by the trial and error method. The same errors are repeated, and final success is a matter of time and chance.

4. The subject considers the shape and size of each piece, and attempts to choose the appropriate hole. These individuals generally learn by experience and show less tendency than the preceding group to repeat errors.

5. A few study the picture, decide what is needed to complete the meaning as well as to fit a given hole, and then select the appropriate piece. These subjects make few errors and rarely repeat an error.

It is noteworthy that comparatively few consider anything except the size and shape of the pieces, and those few are scattered among all ages and many grades of mentality.

The reaction to the double triangles constitutes almost a test by itself, and frequently appears to be determined by affectivity rather than by intelligence. The problem is complicated by the fact that the large triangle is nearly, but not quite, equilateral. Hence a subject with some knowledge of geometry and a fairly well trained eye may be more readily discouraged by it than a subject of distinctly poorer mentality and less training.

II. (5 to 8 years.) Minimum number of moves, 13. Time, not more than 5 minutes. As this is somewhat more difficult than the preceding it usually need not be given to those who fail badly on No. 1, that is, those at the first and second levels mentioned.

III. (From 8 years.) Minimum number of moves, 5. Time, generally not more than 5 minutes. It has been done by children of 12 years in 12 seconds. The examiner should record the number of moves, of repetitions of errors, and of obvious impossibilities tried. It is convenient to record each move by a pencil stroke. Obvious impossibilities may be indicated by crossing the stroke (x) and repetition of errors by a double stroke (v).

IV. (From 10 years.) Minimum number of moves, 11. Time, from 5 to 8 minutes. It has been done by children of 12 years in 1 minute. This is more difficult in some respects than III, but it is sometimes solved by subjects who fail on III. The record may be made in the graphic form described by Dr. Healey, or as suggested above for III.

V. (From 12 years.) Minimum number of moves, 6. Time, not more than 10 minutes. Children of 12 years have done it in less than 2 minutes.

VI. (From 6 years.) Time of exposure, 10 seconds. This test takes but little time with the younger and more defective subjects. Their own recital is brief, and few questions are needed to discover the limitations of their memories and the degree of their suggestibility. The more intelligent ones give longer recitals, and more questions are required for them, but the value of the data obtained is proportionately greater.

Important facts to bring out in the report are: (1) fullness and accuracy of memory in free recital, (2) improvement or the reverse under questioning, (3) degree of suggestibility, and (4) any peculiarities in the type of reaction as, for example, the tendency of some subjects to ramble on indefinitely with imaginative details following chance associations.

VII = Y 16 = B X 2.

VIII. (From 7 years.) The number and kind of errors is more important than the time. A subject who understands the question generally responds promptly.

IX. (From 12 years.) It is convenient to use this and the following as introductory to B XV 3.

X. (From 13 years.) This should not be given to subjects who fail entirely on IX.

XI = B XV 3.

XII. (From 9 years.)

XIII. (From 7 years.)

XIV. (From 14 years.) Time, not more than 3 minutes. This is a vocational test. It should never be given to a subnormal.

XV = B XV 4.

XVI. (From 12 years.) At 12 years, from 65 to 75 squares should be tapped in the 30 seconds, with from 0 to 4 errors. This is good as a vocational test. If time permits, from 3 to 5 trials should be given to show the effect of practice.

XVII, XVIII and XIX are not usually given as separate tests.

XX. This is valid from 12 years, but only for subjects who are familiar with the game. For lack of time it is rarely given.

XXI. (From 9 years.) The responses should be recorded in full.

XXII. (From 9 years.)

XXIII. (From 9 years.) From 5 to 10 minutes is usually sufficient. The longer time generally goes with the poorer results.

This is a pictorial completion test, sometimes called the "pictorial Ebbinghaus," or the "apperception test." Dr. Healy added it to his series after the publication of the monograph. It may replace or supplement the prose completion test, and is valuable for subjects too young or too defective to use the verbal narrative, as well as for illiterates and non-English speaking individuals.

The test consists of a picture puzzle representing ten incidents. From each of these ten parts of the picture is cut a square containing something necessary to the sense. For example, one boy has just kicked a football to another boy, and the ball is on the square cut out. Of the same size as these squares are still others, some of which are blanks, while some show a variety of objects not appropriate for filling the spaces.

The puzzle is placed before the subject, with the blocks (right side up) at his right. The examiner points to the cart from which a wheel has come off, and says, "What has happened here?" The answer usually comes promptly, "The wheel has come off." "Very well, now see how quickly you can find the wheel and put it in place." As the wheel goes into position, the examiner starts the stop-watch and begins his record. When the subject seems to have finished, he is told to look it over carefully and make any changes that he likes. The time is taken when he says that he is satisfied. It is

well then to ask him to explain the picture. This may lead to his making corrections (which should be recorded as such), and it enables the examiner to decide how far any of the blunders were logical.

A specimen record is here given.

Time 4 minutes, 47 seconds.

For wheel put wheel

" cat " milk bottle, daisies, crow

" broken window put whole window

" football " baseball

" hat " hat

" log " ax, log

" white bird " cage, crow, white bird

" apple " dish of fruit, cherries, apple

" rooster " cat

" dog " dog

The three errors, in this case, were not illogical for the subject explained that the girl was feeding the bird, and that the rooster was afraid of something, and he thought the cat was the most probable of the objects represented.

The errors in this test show very distinct types.

1. Imperfect apperception, as above.
2. Association by similarity instead of logical meaning, as when ax is substituted for log.
3. Fantastic interpretations, as when the clock is put where the hat should be because "the girl might want to know the time."
4. Fatigue, when a few blocks are well chosen and then the remaining places filled with blanks
5. Apperception lacking, when the spaces are filled with any blocks that come to hand, and no attempt is made at explanation.

THE KNOX SCALE.

This scale has been developed at Ellis Island for the examination of illiterate aliens.⁸ It resembles the Binet Scale both in being an age scale, and in having adopted, with little or no modification, many of the Binet tests. The tests not represented in either of the three sets already discussed fall into four principal groups.

1. Information tests, III 1 and 5, VI 5 and 7, VII 6, VIII 4, IX 5 (second part), X 6, XI 4 and 5, and Adult (make-up) 5 and 6. These are similar to the Binet "information" tests, but are suited to a different environment.

2. Arithmetical tests, X 4 and 5, XI 6, XII 5 and 6, and XIII 6. These are concrete operations and do not presuppose any formal education.

3. Performance tests, IV 1 and 2, V 1 and 2, VI 1, 2 and 3, VII 1, 2 and 3, VIII 2, IX 1 and 3, X 1 and 2, XI 1, XII 1, XIII 1 and 2, and Adult (make-up) 1, 2 and 3. These resemble the Healy puzzle tests.

4. Miscellaneous tests, V 5, XI 3, XII 3, XIII 3, and Adult (make-up) 4 and 7.

Some of these tests might be classified differently, as, for example, VIII 4 and XI 4, which are comparisons of remembered objects, and similar to Y 9 = B VIII 1, though not its equivalent.

Two of these tests call for further consideration.

The Seguin form-board (Norsworthy's modification) which appears as K IV 1, V 1 and IX 3, has been specially studied by Goddard.⁶ He found that for normal subjects between the mental ages of four and twelve years the time ranged from about 34 seconds to 14 seconds, while the low-grade defectives (mental age, four years) sometimes took more than 76 seconds. His figures indicate that for both normals and defectives, the time decreases quite regularly with increasing mental development. This being the case, there seems to be no need of limiting the use of this test to particular years.

The number and character of the errors is also significant and Goddard suggests a form of record similar to that above described for H XXIII. The board is placed before the subject with the longer dimension from right to left, and so that the cross is at the top and the star at the bottom. The blocks are denoted by numbers from left to right along each line (for example, the cross is 1; triangle, 2; circle, 4; star, 8), but these numbers do not appear on the board or on the blocks. The record occupies ten lines, one for each block. Thus, if the first line reads 6 9 3 5 6, it means that block (6) was tried first in hole (9), then in (3), then in (5), and finally in its proper place. If no mistakes are made, the record appears as a single column of figures, the order of which shows the order in which the blocks were taken.

K adult 7, the ink-blot imagination test, should be particularly serviceable because the six ink-blots used by Knox⁹ are well chosen to present varying degrees of difficulty, and because this material has been standardized. Three groups of subjects were tested.

- (1) 25 average Italians, 15 to 30 years old.
- (2) 25 defective Italians, 15 to 30 years old.
- (3) 12 American men of common school education, 25 to 35 years old.

The following facts were ascertained, by the aid of which the examiner may interpret his results.

I. Failures to find resemblances occur.

- 17 times in 150 in group (1)
- 80 times in 150 in group (2)
- 0 times in 72 in group (3)

II. Illogical associations are characteristic of defectives.

III. The average reaction-time is, for normals about 3.7 seconds, and for defectives about 6.3 seconds.

(See also W 45.)

MISCELLANEOUS TESTS.

1. Labyrinths, B and A (from 13 years). B is the more difficult for most subjects.
2. Cancellation, the A-test (from 13 years) W 26.

3. Dot-counting (from 13 years) W 27. Compare K adult 4.

4. Substitution (from 14 years) W 37. This is similar to H VIII, but more difficult.

5. Prose completion (from 14 years) W 48. The form of this test, which has been used most in the hospital work, is a short fable.

6. Ethical discrimination (from 13 years). Serial arrangement of ten offenses. This is adapted from Dr. G. G. Fernald's test.⁷ The two sets, one for boys and one for girls, now in use at the Psychopathic Hospital, were prepared by Dr. V. V. Anderson.

PRELIMINARIES TO THE EXAMINATION.

Certain matters preliminary to the mental examination proper deserve careful attention. They consume but little time in practice, whereas the neglect of them leads to serious waste of both time and effort, with, too often, inferior results.

THE ATTITUDE OF THE SUBJECT.

The importance of putting the subject at his ease and of winning his confidence to some degree will bear emphasis here, and a few practical suggestions may be helpful to the inexperienced examiner.

School children examined at school and inmates of an institution examined in that institution have the advantage of a familiar environment. If, in addition, the examiner happens to be a member of the regular staff, the subject is likely to respond promptly and naturally.

In a hospital, on the other hand, the conditions are less favorable. Especially in the out-patient departments, the subject is likely to find himself in unfamiliar surroundings, and, if he recognizes the nature of the institution, he may be distinctly apprehensive.

The younger subjects and those more deficient mentally often appear to be quite uninfluenced by the nature of the institution. They may, however, be timid in a strange place or with a strange person, and in extreme cases it is necessary to have a parent or friend present during the examination. This is undesirable, and should be avoided if possible, for the presence of a third person tends to distract the subject's attention, and frequently a well-meaning friend interposes with suggestions and explanations in such a way as to destroy the significance of the tests.

Usually the pleasantly spoken invitation, "Will you come with me for a while?" or, with children, "Come and play games" is sufficient. Sometimes the sight of a game or puzzle helps. Things of no importance in dealing with children accustomed to kindness and gentleness may carry unexpected weight with those who are fearful and suspicious. Some who shrink from a direct approach, if given opportunity to watch

the examiner for a few minutes as he moves about the room and talks with others, will go with him of their own accord.

Older and more intelligent individuals, as well as those who have already had the medical examination, are sometimes very nervous and apprehensive. An apparently trivial thing which, however, may do much to reassure the subject is to enter the examining room slightly in advance of him, and courteously but casually ask him to close the door. Psychologically there is a great difference between being shut into a strange room at the mercy of a strange "examiner," and shutting that same door oneself.

An intelligent subject may find many of the tests childish and be inclined to resent them. His coöperation can generally be secured by explaining that the tests are merely devices for getting acquainted with his individual needs and capacities, and that easy tests serve this purpose quite as well as more difficult ones and require less time.

The more mature subjects sometimes display anxiety as to whether they are "failing" or "passing." In that case, it should be explained that this is not like a school or civil service examination. We care quite as much to understand the nature and extent of the subject's difficulties as to gauge his abilities. So if he does his best with each test it is sure to be "right."

In this connection it should be said that, while logically the medical examination should precede the mental, practically the task of the psychologist is likely to be easier when the reverse order is followed.

SENSORY TESTS.

Since the ordinary mental tests depend so largely upon sight and hearing, it is important for the examiner to know whether his subject is handicapped in either of these respects, and, if so, to what degree. Sometimes it is evident at once that both these senses are acute, or that one or both are defective. If the "history" has been taken, or if the medical examination has preceded the mental, or if the subject is a child brought in by parents or guardians, definite information may be obtainable from these sources. An apparently casual question, such as "Do you have headaches?" or "Did you ever wear glasses for reading?" will sometimes elicit the facts desired. In many cases the results of such inquiries are negative; but just when the examiner is making up his mind that they are needless, and that, for once at least, the pressure of work justifies their omission, there appears the exceptional case. Perhaps it is a small boy who blunders cheerfully through the examination, and at its close pulls a pair of spectacles from his pocket, remarking that he is supposed to wear them but never does so. Or a girl admits that glasses have been prescribed for her, but because a little brother's eyesight was seriously injured by the breaking of his glasses, her mother is unwilling for her to wear them.

The examiner must, therefore, be cautioned to be always on the watch for visual or auditory defects. As a direct result of such the subject may react in specific tests with the slowness and inaccuracy characteristic of low-grade mentality. Furthermore, it is now recognized that some sensory defects involve a nervous strain which may lower the general level of mental efficiency.

If there is reason to suspect sensory disorder, the subject should be referred to a specialist, oculist or aurist, as the case may be; but, for his own purposes, as a means to the correct interpretation of tests, the psychologist may occasionally wish to give rough tests of sensory capacity.

A little practice will enable him to give the whispered speech test (W 18 A), or the watch test, for hearing, well enough to check, or to supplement, his information.

For visual acuity, Franz's³ test is well adapted to small rooms. This consists of a card on which are shown two parallel lines, 1 mm. apart and each 1 mm. wide and 3 mm. long. Franz used white lines on a black card. They should be distinguished as two at a distance of from two to three meters. It is convenient to hang the card on the wall opposite the window, hanging over it a blank card. Let the subject stand by the window facing into the room; remove the covering card and ask what he sees; let him approach, if necessary, one step at a time, until he distinguishes two lines; then let his eyes be covered in turn by means of a small card, and ascertain whether he sees equally well with both; if not, let him approach nearer until the lines appear separate to the poorer eye also, thus arriving at some notion of the difference between the eyes. For purposes of checking, it would be well to prepare two test cards, the lines being vertical on one and horizontal on the other, and to expose these cards in irregular order.

Lack of space, as well as lack of control over lighting and noise make it out of the question to use most of the standardized tests, or to compare results readily with those of other examiners. The tests used must be standardized for the occasion, and can be relied upon only within very wide limits.

THE NATURE OF THE PROBLEM.

Better results will generally be obtained, and at less cost of time and effort, if at the beginning of an examination the examiner informs himself as to the problem involved. By this is meant the immediate occasion for the examination as stated by the subject himself, or by his friends or guardians.

Some examiners dislike to receive such information in advance, preferring to approach each case in perfectly naive fashion. This attitude is, in its way, thoroughly scientific and, as such, defensible if time does not press. In some instances lack of information compels it. As a

rule, however, it probably does not make for efficiency.

The real danger, against which such an attitude expresses an extreme precaution, lies in the tendency of the inexperienced examiner to take this first statement of the problem as a definite indication of its source. He should be warned emphatically that there is no necessary relation between them. He must be prepared to see the case transformed under his eyes, and that, not occasionally, but frequently. What he does obtain from the original statement of the problem is a notion of the practical issues already involved, in the light of which he can interpret the results of his examination more readily and more adequately, and decide more wisely as to the number and character of the supplementary tests to be given.

It is true a case is sometimes misrepresented—rarely, with deliberate intention, more often, quite unconsciously. For instance, a boy of about thirteen was brought for examination. He was a state ward. One of his sisters was feeble-minded, and it was feared that he might be deficient mentally. The people with whom he was living reported, among other things, that his memory was abnormally poor. In the course of the examination, however, he gave a fluent and vivid account of a moving picture play, with a rather complicated plot, which he had seen on the preceding day. Inquiry brought out the fact that the things for which his memory was so poor were his household tasks, such as fetching the fire-wood and feeding the hens. It is true that he was immature, but it was his imagination and not his memory that was undeveloped. He had failed, that is, to appreciate the point of view of the housekeeper and of the hens—but so, for that matter, had his elders failed to appreciate his point of view.

(To be continued.)

Clinical Department.

A SUGGESTION IN THE TREATMENT OF HEMORRHAGIC DISEASE OF THE NEW-BORN.

By J. C. HUBBARD, M.D., BOSTON.

IN hemorrhagic disease of the new-born, we know that subcutaneous injections of rabbit serum are of definite benefit. Recently come reports that subcutaneous injection of human blood will bring about cures. By these two methods some substances which the baby lacks are provided in small amounts. These substances are absorbed and the hemorrhages cease. It has been shown clinically so many times

that human blood given to the baby by transfusion is the best treatment, that there is no longer any discussion on this point. Transfusion has saved some babies when other methods have apparently failed. I do not know whether transfusion of human blood is the best treatment because the dosage is larger or because the substances are different. Clinically it does not seem to me that the difference in the effect of an injection of rabbit serum and a transfusion is due to the rapidity of absorption, though, of course, by the later method the lacking substances are mixed with the blood at once.

We all appreciate the difficulty in the technique of transfusion in the new-born because of the small size and delicacy of the baby's veins. To transfuse a baby light anesthesia is necessary to keep the baby quiet and care must be taken not to give the blood too rapidly or in too large a dose.

The suggestion I wish to make, and I make it before I have been able to carry it out myself, because it may be some time before I see a proper case, is that the blood be put free into the abdominal cavity of the baby. If Kimpton's tube were used, a hole in the abdominal wall only large enough to admit the cannula would be necessary. The blood could be run in rapidly and there would be less danger of an over-dose. The hole could be closed with a stitch or two. The whole operation on the baby would require but a few moments. Less anesthesia would be necessary. The necessary exposure and the operation itself would cause certainly no greater shock than a dissection of the jugular vein, and I believe absorption from the abdominal cavity would be sufficiently rapid to cure. It certainly would be as rapid as the absorption of rabbit serum from under the skin, which in the milder cases is curative.

Reports of Societies.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

SECTION OF MEDICINE.

STATED MEETING, FRIDAY EVENING, FEBRUARY 26, 1915. DR. JAMES E. TALLEY, IN THE CHAIR.

THE VON NOORDEN TREATMENT OF DIABETES MELLITIS.

DR. JAMES TYSON: I have selected this subject because the administration of the newer dietetic treatment for which we are largely indebted to von Noorden has resulted in a complexity, trying to doctor and patient, and I thought I might be of service in simplifying it. It will aid me in my purpose to follow Naunyn and v. Noorden and subdivide diabetes into three rather arbitrary divisions. (1) Slight or mild cases; (2) transitional or semi-

severe; (3) really severe cases. There are many mild cases which may be so controlled that the patient is practically as well off as if there were nothing the matter. v. Noorden claims that not enough stress is laid on the requirement that to insure success sugar must be kept permanently absent from the urine and even transitory reappearance must be avoided if possible. Treatment consists in the strict elimination of carbohydrates from the food. This rests the "sugar factory" and gives opportunity for recuperation and resumption of function. When sugar is not removable by simple carbohydrate diet v. Noorden resorts to reducing the proteins in addition to cutting out the carbohydrates and to employing the so-called "oatmeal cure" as an additional measure. In these cases brilliant results are sometimes obtained by interposing periods of diet composed exclusively of oatmeal or some similar food accompanied and followed by two or three days of vegetable food and eggs. For never more than three days in succession should the oatmeal diet be used. "Fats are burned in the fire of the carbohydrate" is a statement not altogether correct, but one which emphasizes the fact of the dependence of acetone metabolism upon carbohydrate metabolism. Alkalies and especially sodium bicarbonate, neutralize but do not prevent the production of acetone, diacetic acid and oxybutyric acid in the blood. v. Noorden gives one-half oz. to two-thirds oz. of sodium bicarbonate in a day. I seldom give more than a drachm or a teaspoonful three times a day. In nearly all cases in the presence of decided acidosis I give them nearly continuously. The citrate of potassium and sodium are more palatable than the carbonate and are less disturbing to the stomach. In the diet in incipient coma all restrictions except pure sweets are removed. The free use of milk, 6 to 8 oz., every two hours is recommended by some. If obtainable sugar-free milk may be used. v. Noorden claims that he has tided over cases by an exclusive diet of oatmeal preparations. He advises no food, but large quantities of whiskey well diluted 3 to 5 oz. daily. These alcohol periods are continued for one to two days followed by milk and oatmeal soups with a gradual return to the diet of chronic diabetes. Opium, chloroform and ether increase the acidosis. Medicines in the earlier stages of diabetes have little value and less in the latter stages. Certain mineral waters have a reputation. Their operation is probably similar to that of the sodium carbonate already described. They should be taken freely. An important measure in the treatment of diabetes is rest, especially in bad cases. Efficiency is easily shown by urinalysis before and after a rest of a couple of days in bed.

THE DIAGNOSIS OF ENTEROLITHS BY MEANS OF THE ROENTGEN RAYS; WITH REPORT OF A CASE.

Illustrated by lantern slides.

By DR. GEORGE E. PFAHLER AND DR. C. J. STAMM. (Read by invitation.) The paper is a report of a case of an enterolith of about one and one-half inches in diameter, which was first recognized as a movable body in the abdomen, and thought to be a movable kidney or a mesenteric gland. By Roentgen examination it was determined to be an enterolith, located in the cecum and capable of moving from the pelvic cavity to the crest of the ilium. By

the use of glycerine and olive oil enemata and abdominal massage it was moved from the cecum to the rectum and then removed by the finger. It is claimed to be the first case to be diagnosed before operation or autopsy, and the first large enterolith to be removed without operation.

STUDIES IN RENAL FUNCTION WITH SPECIAL REFERENCE TO NON-PROTEIN NITROGEN AND SUGAR CONCENTRATION IN THE BLOOD, PHENOLSULPHONEPHTHALEIN ELIMINATION AND BLOOD PRESSURE.

DR. A. H. HOPKINS (by invitation) and DR. LEON JONAS (by invitation). The purpose of this paper is to study:

1. The relation of proteid feeding to nitrogen retention in the blood.
2. The relation of nitrogen retention to renal function.
3. The relation of blood sugar, blood pressure, phthalein elimination and nitrogen retention. So far as we can ascertain, there have been no studies covering all of these phases simultaneously and the possible relationship existing between them; though quite recently Folin and Frothingham and Smilie have reported upon somewhat similar studies, the latter's production having been published shortly before the completion of this work.

From our studies we have reached the following conclusions:

1. Proteid feeding in nephritis has a direct influence upon the retention of nitrogen in the blood. This is most pronounced in the pure chronic interstitial type with hypertension.
2. The estimation of retention by blood analysis is of definite clinical value from the standpoint of therapy, and though this series is too limited to permit of definite conclusions in regard to its prognostic value, our findings so far confirm those of other workers who advocate its usefulness in this field.
3. Chronic passive congestion does not cause an increase of waste nitrogenous products in the blood.
4. In the presence of nitrogen retention, the phthalein output is usually low and the blood pressure frequently high.
5. Chronic passive congestion may greatly impair the phthalein output. Variation in the elimination of this dye may also be noted in different stages of nephritis, and in cases with "hyperpermeability."
6. To be of value, the nitrogen retention and phthalein tests should be repeated at intervals, the value of the former being increased when combined with clinical observations of the patient, diet, etc.
7. A slight hyperglycemia occurs in many high pressure nephritides and frequently in those with retention of nitrogen and impaired phthalein elimination.

PECTORAL ABSCESS.

DR. DAVID RIESMAN: Attention is called to subpectoral abscess as an important clinical condition. The onset is acute with intense pain below the clavicle. A focus of entrance of infection may or may not be present. The fever is high, the nervous symptoms are marked and leukocytosis is present. Two illustrative cases are cited, in both of which the streptococcus was isolated in pure cultures from the pus. Treatment consists in early incision.

SPLANCHNIC NEURASTHENIA AND ITS TREATMENT.*

DR. A. B. HIRSCH: The fact that the protean symptoms of true neurasthenia can be removed by one generally applied method, mental calm with muscular inaction (the Weir Mitchell rest cure, in practical shape) is now everywhere accepted. That patients with neurasthenia associated with overdistention of the intra-abdominal veins need radically different treatment is not, however, as widely known as the relative frequency of their occurrence would seem to suggest. Three cases are cited exhibiting a type of neurasthenia in which abdominal muscular relaxation coexists and largely depends upon splanchnic venous congestion. Unless correctly differentiated and treated such patients pass into hopeless invalidism. This type of neurasthenia improves coincidentally with increased tone of the splanchnic vessels and treatment is essentially that by physical methods in suitable combination. In the first case, which was that of an unmarried woman of 40 years presenting a typical instance of splanchnic neurasthenia with possible complication of incipient pulmonary tuberculosis, a preliminary course was given of the static wave current with an 8" x 10" electrode applied to the upper abdomen. This sought the local contractile action upon the relaxed abdominal organs and tissues as well as the general tonic effect by exercise of unstriated muscular fiber everywhere. This alternated, through vibrassage of definite vertebral areas, with reflex action upon the affected organs. Contraction of the distended liver (the "liver reflex" of Abrams) was attempted by applying a double-prong vibratode upon the first, second and third lumbar intervertebral spaces. By a like application below the seventh cervical vertebra the general vasomotor apparatus is stimulated. For increasing the tone of the splanchnic vasomotor system vibrassage of the intervertebral spaces from the second to the eighth thoracic vertebra inclusive was given. Later the rapid sinusoidal current was substituted. To improve the power of the abdominal wall muscles sponge electrodes were held beneath each lower scapular angle, the slow sinusoidal current being in action. To redevelop normal action of the intestinal muscular layer, its peristaltic action was imitated by the slow sinusoidal current. This modality may require the addition of the static induced current. Relief was noted at each visit and fair progress has been made. The symptoms and treatment in the second and third cases presented marked similarity.

ADDISON'S DISEASE IN A NEGRO WITH INVOLVEMENT OF THE CENTRAL NERVOUS SYSTEM.*

DR. ALFRED GORDON: The case is that of a middle-aged mulatto who developed during 18 months the following symptoms: An exceedingly dark face, very dark dorsum of hands and feet and dark bluish spots on the mucous membrane of the mouth and pharynx. The darkened areas had the color of coal and contrasted strikingly with the rest of the skin. At the same time he presented marked asthenia, diarrhea, vomiting and vertigo. He also showed cerebellar phenomena, namely,—asynergia, loss of knee jerks on one side and much diminished knee jerk on the other side. The blood was normal; Wassermann negative; urine negative. Temperature

96.5; blood pressure 80-100. Autopsy showed calcareous masses in the apices of the lungs, thickened mitral valves, adhesions around the spleen, liver and pancreas. The suprarenal bodies were unusually large and under the microscope their tubercular nature was demonstrated. The cerebellum presented a softened area near the middle line in one hemisphere. The spinal cord from the midthoracic down to the lumbar segment was surrounded by inflamed pia, especially at the level of the roots; the posterior roots showed degeneration. The direct cerebellar tract and Clarke's column of cells on one side did not take stain as well on one side as on the other. The paper discusses the relationships between all these findings. The cord lesions corresponded to the level from which the sympathetic system sends out fibres to form the suprarenal plexuses. The conclusion is reached that the adrenals formed the point of departure of the entire morbid process. A plea is made for post-mortem examination of the nervous system in every case of Addison's disease. The occurrence of the disease in a negro is a rare phenomenon.

Book Reviews.

The House-fly. By C. GORDON HEWITT, D.Sc., F.R.S.C., Dominion Entomologist of Canada. Cambridge, England. University Press. New York: G. P. Putnam's Sons.

This monograph in the Cambridge Zoological Series is devoted to an exhaustive study of the common house-fly, *Musca Domestica* Linn., its structure, habits, development, relation to disease and methods of control. Parts of it have already been published in the *Quarterly Journal of Microscopic Science*, but the present volume represents an entirely new work incorporating the contributions to the knowledge of the subject which have been made during the past five years. The volume is not a popular treatise, but is primarily intended for the use of entomologists, physicians, students, health officers and others similarly engaged or interested in the subject. The text is divided into six parts, dealing respectively with the anatomy and bionomics of the house-fly, its breeding habits and life history, its natural enemies and parasites, other species of flies frequenting houses, the relation of house flies to disease, and preventive and remedial measures for their control. The volume is abundantly illustrated with 104 excellent figures, some of them colored, and concludes with a profuse and valuable alphabetic bibliography.

* This paper was read at the January Meeting of the Section on Medicine.

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THE CONTROL OF OCCUPATIONAL DISEASES.

IN England the study of this class of diseases was initiated by Sir Thomas Oliver, who found that a large proportion of persons employed in the pottery industry became seriously affected with lead poisoning, and it was subsequently ascertained that there are no less than 150 trades in which poisoning by lead is a hazard. In this country much attention has been given during the past few years to the study of occupational diseases, with a view to preventive legislation, and the first American congress on the subject was held in 1910, in Chicago. Dr. J. B. Andrews made an investigation of phosphorus poisoning, which led to legislation controlling the match industry, and many other important investigations have since been set on foot, such as those by the United States Labor Bureau, the Health Boards of Massachusetts and New Jersey and the New York and Illinois State Factory Commissions. The practical results, however,

are as yet inadequate, and much painstaking work still remains to be done in this important field.

As steps in advance it may be noted that one of the new sections in the Revised Sanitary Code, which went into effect in New York City with the beginning of this year, requires the reporting of occupational diseases and injuries, and that the Department of Health has recently organized a division of industrial hygiene. The action of the department was the result of a request by Commissioner Goldwater to the Advisory Council that it should consider the advisability of establishing such a new division. The council at once took the matter up, and after due deliberation signified its approval of a measure of this character endorsing the report of a committee of which Dr. George M. Price, of the Joint Board of Sanitary Control, was chairman. In this report it was stated that the general mortality and morbidity of the population are profoundly influenced by the conditions of the industrial establishments in the city, by the hazards of industry, and by health conditions of the industrial population. Private organizations like the Museum of Safety, the Association for Labor Legislation, and the Metropolitan Life Insurance Company are not able, by means of their official functions, to safeguard this industrial population; while the State Labor Department, with its present organization, with its attention necessarily given to the whole state, and with its activities mostly centered upon the safeguarding of machinery and the enforcement of legislation regarding child and woman labor, cannot devote much of its attention to industrial hygiene or to educational propaganda. Investigation and research in regard to occupational diseases, the prevention of industrial poisoning, and the spread of knowledge of industrial hygiene among the industrial population should be legitimate functions for a progressive health department in a great city like New York, in keeping with its general work in the prevention of disease and the preservation of the health of the citizens. It is therefore within the functions of the Department of Health to establish a bureau of industrial hygiene, and the functions of such bureau should be:—

1. The establishment of a central occupational disease clinic for research investigation on the lines of Professor Devoto's clinic for industrial diseases at Milan. Such a clinic should be

separate from the tuberculosis clinics, although acting in harmony with them and in coöperation with the university and hospital clinics throughout the city; it should be the clearing house for all specific occupational diseases and industrial poisonings, should make a study of the prophylaxis of the various industrial affections met with, and should be supplied with ample means for its work of investigation and research.

2. The establishment of an industrial hygiene educational division, which should endeavor by all possible means to spread the knowledge of the causes of industrial poisoning, the preventive measures to be taken in various industries, and right modes of work and living for the industrial population. It should also, in coöperation with the various manufacturers' associations and other existing bodies, as well as with the Department of Education, endeavor to conduct a general campaign of education among employers and workers as to the prevention of occupational diseases and the preservation of the health of the workers.

A bureau of industrial hygiene organized on the lines indicated, the committee urges in concluding, would be a potent factor in the reduction of mortality and morbidity, and would add prestige and credit to the municipality and to its health department.

This new division has been placed under the general supervision of the director of the bureau of infectious diseases, and it is the purpose to have it closely associated with the bureau of public health education. A special clinic for occupational diseases has been opened, and a committee on industrial hygiene of the Advisory Council of the Department of Health has also been organized, the chairman of which is Prof. W. Gilman Thompson, well known as an authority on occupational diseases, who for a number of years has devoted much attention to the subject in the way of general study and especially in connection with the out-patient department of Cornell University Medical College. Among its other members are Charles Baskerville, Ph.D., professor of chemistry in the College of the City of New York; Dr. E. M. Alger, professor of diseases of the eye in the New York Post-Graduate Medical School; Dr. J. B. Andrews, secretary of the American Association for Labor Legislation; Dr. G. M. Price, and other prominent physicians.

FOUR IMPORTANT RECENT LEGAL DECISIONS.

I. LEGAL RESPONSIBILITY FOR POLLUTION OF WATER SUPPLY. An interesting and important decision has recently been rendered by the Supreme Court of New Jersey, relative to legal responsibility for the pollution of water supply. The question arose in conjunction with a suit growing out of an outbreak of typhoid fever in Mount Holly, N. J. The plaintiff, a citizen of that town, sued the local water company for recovery of expenses and indemnification for loss of time due to the illness of his three children during the epidemic. It was shown that the plaintiff had paid the company in advance for a year's water supply covering the period during which the illness occurred. A lower court, before which the suit was first tried, found for the plaintiff, and upon appeal of the defendant this decision was sustained by the supreme court, which found that there was evidence that the water supply was being polluted with sewage and that the company had known of this pollution for upwards of three years before the outbreak of the epidemic. The court held that it was the duty of the water company to supply the plaintiff with pure and wholesome water. This decision was stated by the court as follows:

"Water is a necessity of life and one who undertakes to trade in it and supply customers stands in no different position to those with whom it deals than does a dealer in foodstuffs. He is bound to use reasonable care that whatever is supplied for food or drink shall be ordinarily and reasonably pure and wholesome."

This decision is of importance as establishing a precedent fixing the responsibility of local companies or water boards for pollution of water supply and for illness, damage and loss resulting therefrom.

II. COMPENSATION FOR OCCUPATIONAL DISEASES. In the weekly report of the United States Public Health Service for May 14 is quoted an opinion written by Chief Justice Rugg of the Supreme Judicial Court of Massachusetts construing the workmen's compensation law of this Commonwealth, which provides for compensation for "personal injuries arising out of and because of" the workman's employment. The opinion was rendered in a case in which suit was brought against a life insurance company to recover for the death of one of its beneficiaries.

"The deceased employee was a cook upon a lighter, where his employment required him to

live and be a large part of the time. The craft began to sink and he then made several trips to and from the deck in an attempt to save some clothes and a surveying instrument. With these he hastened to the dock, where he died soon after. He had suffered from valvular disease of the heart, and his exertions in the effort to save his belongings and the excitement incident to the loss of the vessel so aggravated the heart weakness as to cause his death. The perils of the sea were risks arising out of and in the course of the employment of the deceased. The sinking of the boat was obviously one of these perils. It is impossible to say as a matter of law that it is not one of the instincts of our common humanity to try to save from a sinking vessel all of one's possessions that reasonably can be secured. The deceased perhaps exerted himself too much for this purpose, although it would be difficult on the evidence to determine to how great an extent the fatal result was due to that cause rather than to the excitement of the occasion. Under these circumstances the calm and wisdom of quiet and safety can not be expected. Much must be excused to the surrounding commotion. The deceased did not abandon the service of his employer and embark on a venture of his own when he tried to save his clothing. It was an implied term of such service as this that the employee might use reasonable effort to this end in an exigency like that which arose. This is not an instance where the discipline of a ship was violated or a higher duty neglected. It was in the course of his employment to live upon the lighter. Whatever it was reasonable for anyone to do leaving a sinking vessel, which was his temporary home, was within the scope of his employment. The standard to be applied is not that which now, in the light of all that has happened, is seen to have been directly within the line of labor helpful to the master, but that which the ordinary man required to act in such an emergency might do while actuated with a purpose to do his duty."

The Industrial Accident Board found that the death of the employee arose out of and in the course of his employment and the court held that this finding was warranted by the evidence. In its editorial comment upon this case the public health report says:—

"In an opinion which was published in the Public Health Reports, June 12, 1914 (p. 1583), the same court decided that blindness resulting from an acute attack of optic neuritis induced by poisonous gases with which the workman came in contact in his work was a 'personal injury' within the meaning of the law and that the afflicted workman was entitled to compensation.

"Later the court held that lead poisoning was included in the terms of the act. (*Johnson v.*

London Guarantee & Accident Co., Public Health Reports, July 3, 1914, p. 1781.) In the opinion Justice Crosby said: 'It is clear that 'personal injury' under our act includes any injury or disease which arises out of and in the course of the employment which causes incapacity for work and thereby impairs the ability of the employee for earning wages.'

"The decisions above referred to construe the Massachusetts workmen's compensation law as providing for compensation for workmen acquiring acute or chronic disease as a result of occupation, or in the course of employment as well as for workmen injured by industrial accidents."

III. LEGAL STATUS OF CREAM UNDER THE MILK STATUTE. In a recent decision by Judge Carroll of the Supreme Court of Massachusetts, the full bench has for the first time decided that cream is to be subject to the same statute regulations as milk under the terms of the law forbidding adulteration. A local milk company had been found guilty of adding water to the cream which it offered for sale. The company took exception to this decision, defendant claiming that cream and milk are different substances and that the addition of water to cream was not expressly specified in the legal statute. The court overruled this exception, rendering its decision in part as follows:—

"Generally, milk and cream are the same thing, and under the statute seeking to prevent the adulteration of milk by the addition of water or any foreign substance, cream is considered to be the same thing as milk.

"The statute was passed for a purpose. It was to protect the public health. The adulteration may be equally serious, whether it is of the whole milk or in any of its component parts, such as cream or skim milk, and the protection of the consumer is as much desired in the sale of the component parts of milk as in the sale of milk itself."

IV. SUPPRESSION OF A SPURIOUS MEDICAL COLLEGE. On May 21 the full bench of the Massachusetts Supreme Court decided that the New England College of Chiropractic, Inc., has no right to grant the degree of D.C. and upheld the previous decision of the Superior Court which imposed a fine of \$100 for granting this degree without authority. Complaint against this institution was brought on by the fact that a degree signed by seven persons was granted by it in June, 1914. It was declared by the court that this degree was not a degree in the legal sense. In its decision the court said:—

"The word doctor used in connection with an unusual and high sounding word would be quite as likely to impose on the ignorant and credulous as the false use of the conventional Doctor of Medicine.

"The conferring of a title made up of the word doctor and a word relating to the healing art may be found to be the granting of a degree in the meaning of the statute.

"When a title like doctor, commonly associated with unusual skill acquired by academic or professional study, is conferred without right, the statute is violated.

"The ordinary diploma of public or private schools does not contravene the statute, but simply certifies to the completion of a course of study."

This decision is of importance as a precedent in the suppression of illegal and spurious medical colleges.

THE MILK SUPPLY AND BOVINE TUBERCULOSIS

As the sources of the milk supply become varied and separated to keep pace with the demand so does the problem of obtaining a pure and disease-free supply become a more difficult one to solve. As a food milk is the largest single element, and in children it is largely the sole food element. To this end the larger centres of population have made various sanitary regulations with regard to the care and condition of the cows and the handling of the milk, to which dairies must conform as a condition precedent to being allowed to contribute to the milk supply of that centre—and the courts have upheld even the most stringent regulations in this respect as constitutional. Some of the milk concerns of their own volition have even improved on these regulations, and in order to insure their supply from contamination from contagious disease present on the dairy grounds they accept but throw away all milk produced during the period of contagion, so that there will be no excuse for withholding the fact of the disease from the concerns.

In the class of the stringent regulations can be placed the tuberculin tests. The test is applied to cows before their admission to the herd and repeated about every six months. Naturally, opposition to a measure which renders valueless so large a number of cattle has been very severe. And the separation of so many cattle from con-

tributing to the milk supply has decreased that supply and greatly increased the cost to the consumers. But the large number of tuberculous cattle discovered by these tests fully justifies the measure. In some instances whole herds were found affected.

On the other hand there has been a tendency to minimize and even to disclaim any danger to man from the bovine type of tuberculosis. At one time even Koch maintained that the bovine type of tuberculosis was not pathological for man. Later he admitted that there was slight pathogenesis for man. The morphological differences between the two types though slight are yet positive. The human type grows more luxuriantly on the usual culture media than the bovine type. The bovine tubercle bacillus is shorter, plumper and stains more uniformly. The human type is preponderatingly pathological for man while the bovine type is pathological for nearly all animals but comparatively little for man. Of all forms of tuberculosis in man it is estimated that about 7% are of bovine origin. This percentage is large when it is remembered that pulmonary tuberculosis, which is such a large item in human tuberculosis, is never found associated with the bovine bacillus. The bovine type is commonly associated with tuberculosis of the lymph glands of the neck and abdomen. About 60% of this form of tuberculosis is bovine. The contention that gland tuberculosis immunizes against other forms of tuberculosis has no proof and does not make this form of tuberculosis desirable. Furthermore, from one half to one fourth of all tuberculosis in children is bovine—and, therefore, ingestion tuberculosis. Meningeal and generalized tuberculosis in children is over 65% bovine. Roughly, the bovine morbidity for persons over 16 is 1.5%; between 5 and 16 years it is 25%, and under 5 years it is 50%. It can be seen that the percentage decreases as milk ceases to be the predominating food element.

The portal of entry for the bovine tubercle bacillus is through the tonsils and the small intestines. The bacillus is derived from tuberculosis of the udder and ingested by human beings. There is comparatively little danger from meat directly because tuberculosis of the muscles is rare and because meat is usually cooked before consumption. Meat may, however, become infected from neighboring organs because of the careless butchering.

When a large number of tubercular infections in man are traced to bovine tuberculosis the necessity for controlling the bovine menace becomes forceful. The effect on the morbidity and the mortality generally, but especially in children who are so largely forced to subsist on milk, will more than repay the cost of producing tuberculosis-free milk. Every case of bovine tuberculosis in man is an ingestion tuberculosis and therefore preventable. The campaign against tuberculosis in man becomes nugatory unless it includes a campaign against tuberculosis in cattle. Proper sanitary methods, sufficient floor and air space and suitable food will prevent tuberculosis in them as in man. Bovine tuberculosis is as much a factor in human tuberculosis as improperly cared for human tuberculosis is a factor in the spread of human tuberculosis. These two factors eliminated the millennium in tuberculosis is accomplished.

BOSTON CONFERENCE ON ILLEGITIMACY.

THE work hitherto accomplished of the Boston Conference on Illegitimacy has appeared in a modest pamphlet privately printed of forty-eight pages. The conference is made up of a group of workers who aim to deal personally with unmarried mothers and who have joined forces in order more clearly to define the problem concerning these women. Two methods have been adopted to accomplish this end. First what might be called a case system plan of discussion of actual cases and secondly, through the formation of groups of workers for special study. Six of these latter groups have undertaken to investigate such subjects as legislation, feeble-mindedness, syphilis, the problem of utilizing facts in the possession of various societies and hospitals, the problem of handicaps other than mental defects leading to illegitimacy and finally the problem of appraising the stigma ordinarily attached to such delinquency.

As might well be expected it is again evident from a reading of the pamphlet that the problem of illegitimacy is one of the most difficult which social workers are called upon to study and it is, therefore, not at all surprising to find that no definite results have, as yet, been attained. As the president, Mrs. A. E. Sheffield,

states, "the positive achievement of the conference at the present stage of its work, lies not so much in conclusions upon the matters of its study, as in contributing something in a peculiarly intricate field toward a sound, critical method." This is certainly no mean achievement and there can be no doubt that it has in large measure been accomplished by the extraordinarily objective and painstaking work of the various members of the conference often under conditions of extreme difficulty. The questions involved are naturally as old as civilization and become increasingly difficult of solution under the various complexities of our modern life and industrial conditions. The intricacy of the matter, however, should be a stimulus rather than a deterrent in getting at all the facts available. When such facts are accumulated there should be more reasonable basis for legislation and for the direction of the public opinion than can possibly exist in the present chaotic state of knowledge on the subject. The problem, however, must go far beyond social conditions. It is evident that standards vary widely in different countries and no doubt in different sections of the same country. That such matters of personal morality can ever be determined or controlled by legislative enactment is not to be seriously considered. The present situation in the countries of Europe may be taken as an example in a broad way, of some of the difficulties in arriving at a universal standard. All this, however, in no way militates against just the sort of work this Boston conference is attempting to do. So long as it remains objective and seeks primarily to discover and appraise facts its efforts should be most earnestly encouraged. If, however, the temptation to theorize and draw hasty deductions should creep in we feel that a large part of its usefulness would be lost. We are therefore extremely glad to note that in this first report no effort whatever is made to draw conclusions except in the most general possible way. The recommendations made are moderate and eminently sane. They should certainly receive careful attention.

THE MASSACHUSETTS STATE BOARD OF INSANITY announces an exhibit of hand-work by patients in institutions under this board, at the State House, Boston, from 10 a.m. to 4 p.m., June 7-15, 1915, inclusive. All who are interested in the welfare of the mentally ill and in occupational therapy are cordially invited. The State House closes at 12 m. on Saturdays.

COMPLIMENTARY DINNER TO DR. THEOBALD SMITH.

The postponed complimentary subscription dinner to Dr. Theobald Smith, George Fabyan professor of comparative pathology in the Harvard Medical School, was held at the Harvard Club on Wednesday evening, June 2, and was attended by about 200 of Dr. Smith's professional colleagues and friends. The occasion was planned as a testimonial of respect, appreciation and good wishes to Dr. Smith upon his completion of more than twenty years of service to the School and to the State, from which he now withdraws to undertake even larger duties as director of the new school of research in animal diseases, recently established in New Jersey by the Rockefeller Institute for Medical Research.

President Abbott Lawrence Lowell acted as toastmaster and introduced successively the speakers of the evening, who were Dr. Frederick C. Shattuck of Boston, Dr. William S. Thayer of Baltimore, Dr. Simon Flexner of New York, Dr. Charles W. Eliot of Cambridge, Dr. William H. Welch of Baltimore, and Dr. Edward H. Bradford of Boston. President Lowell then read extracts from a number of letters received from men of science throughout the world, expressing their admiration and respect for Dr. Smith and the work which he has accomplished. Dr. Smith, in a brief closing address spoke with characteristic modesty of the circumstances attending his long period of service to the Medical School, emphasizing the fact that during this time the University, by standing behind the antitoxin, vaccine and other products of the Bussey Institute laboratory, has rendered to the state and community a service of the utmost value and importance.

As a tribute of esteem to Dr. Smith and an expression of the good wishes of the profession to him in his new labors, the dinner proved an even greater success than could be anticipated. The credit for its successful organization and administration belongs to the energy and fidelity of Dr. Marshal Fabyan and his coadjutors. It is expected that a fuller account of the dinner and of the addresses will be published in a subsequent issue of the JOURNAL.

MEDICAL NOTES.

THE MAYO FOUNDATION FOR MEDICAL RESEARCH.—In the JOURNAL of February 18, 1915,

notice was made of the \$1,000,000 endowment fund given by the Drs. Mayo of Rochester, Minn., for the establishment of a foundation for medical research in affiliation with the University of Minnesota. Later, in the JOURNAL of May 6, 1915, mention was made of the bill passed by the Minnesota Senate prohibiting this affiliation. It is now reported that arrangements are being completed which will be satisfactory to both the University and the Mayo Foundation, whereby the University of Minnesota comes into absolute possession of a fund of \$1,500,000, the only condition being that part of the work shall be done in Rochester. The regents of the University will have sole charge of the teaching staff, salaries and general administration, the Mayo Foundation paying all expenses and allowing the \$1,500,000 fund to accumulate, which, when it is finally turned over to the University will, it is expected, have increased to \$2,000,000.

The Mayo Foundation of the University of Minnesota, as it will be called, will be ready to be put in operation when the University opens in September.

NEW YORK HEALTH DEPARTMENT REPORTS LOW DEATH RATE.—There were 1449 deaths and a rate of 13.02 reported during the past week as against 1547 deaths and a rate of 14.46 during the corresponding week in 1914, a decrease of 98 in the absolute figures and a rate of 1.44 points, which is equivalent to a decrease in the relative figures of 160 deaths.

Scarlet fever, typhoid fever, diphtheria and croup, diarrheal diseases, organic heart diseases, acute bronchitis, lobar pneumonia, pulmonary tuberculosis, diseases of the nervous system, and deaths from violence all showed considerably decreased mortalities.

There were only a few causes which showed an increased mortality, among them measles and whooping-cough, but the increase in each instance was exceedingly small.

Viewed from the point of age grouping, there was no one age group which showed an increased mortality, infants under one year and between one and five years showed a decreased mortality of 3%, the greatest saving of lives having been among the young adults, the decreased mortality over 65 years of age being small in comparison.

The death rate for the first 22 weeks of 1915 was 14.51 per one thousand of the population as compared with the rate of 15.29 in the corresponding period of 1914, a decrease of .78 of a point.

GIFT TO CINCINNATI MEDICAL COLLEGE.—Report from Cincinnati on May 25 announces a gift of \$250,000 from Mrs. Mary Emery of that city to the Cincinnati Hospital. A similar amount is to be raised by the hospital commission and the whole will be applied to the erection and equipment of a new medical school to be located near the hospital and administered in

conjunction with it by the Ohio-Miami Medical College.

PREVALENCE OF MENINGITIS, POLIOMYELITIS AND TYPHOID.—The weekly report of the United States Public Health Service for May 21, 1915, states that during the month of April, 15 cases of cerebro-spinal meningitis were reported from Massachusetts and 10 from Wisconsin. During the same month there were six cases of poliomyelitis each in Maryland and Massachusetts; and of typhoid fever there were 55 cases in Maryland, 64 in Massachusetts, 21 in Vermont and 33 in Wisconsin.

RECIPIENTS OF HONORARY DEGREES.—At the inauguration of Dr. Frank J. Goodnow as president of Johns Hopkins University degrees were conferred on twelve distinguished scholars and scientific men, among them being Dr. Simon Flexner, director of the laboratories of the Rockefeller Institute for Medical Research, and Dr. Thomas Hunt Morgan, professor of experimental zoology, Columbia University.

BERI-BERI ABOARD A BRITISH STEAMER.—Report from New York on May 26 states that 25 cases of beri-beri have been reported as occurring on the British steamer *Deva*, which sailed from Havana May 4 for Cienfuegos, and is now on her way to New York. Eight of the crew of 40 men have died since the vessel sailed.

MILITIA MEDICAL SCHOOL IN TEXAS.—Report from San Antonio, Texas, states that on May 26 a new school in army medical practice for the officers of the state militia of Texas, Arkansas, Oklahoma and Louisiana was opened at Fort Sam Houston. The camp is completely equipped with a field hospital, ambulance corps and regimental infirmary and the classes are to be taught by army officers of the medical department.

GIFT FOR RESEARCH IN SOCIAL HYGIENE.—Dr. Winford H. Smith, superintendent of the Johns Hopkins Hospital in Baltimore, has recently announced a gift from Mr. John D. Rockefeller, Jr., of \$16,500 to be used for the maintenance of the social hygiene department which is to be established at the hospital in September. Dr. Albert Keiden, with four assistants, will be in charge of the work.

NATIONAL CONFERENCE OF TUBERCULOSIS SECRETARIES.—There will be held at Seattle, Wash., June 15 and 16, 1915, the third annual meeting of the National Conference of Tuberculosis Secretaries and the eleventh annual meeting of the Sociological Section of the National Association for the Study and Prevention of Tuberculosis.

In the morning of June 15 the latter organization will hold a symposium on "The Official Responsibility of the State and Its Civil Subdivisions." Dr. William C. White will discuss "The State," Dr. Theodore B. Sachs, "The City" and Dr. George J. Nelbach, "The Country."

This will be followed by a symposium on "The Duties and Opportunities of the Private Associations," with addresses by Miss Edythe L. M. Tate on "The State Association," James Minnick on "The Local Association" and Dr. Charles J. Hatfield on "The Relations the State and Local Associations Should Sustain to Each Other." On the following day there will be a symposium on "Housing in Relation to Tuberculosis," with addresses by Dr. Isaac W. Brewer on "House Infection—A Very Potent Source of Tuberculosis," Dr. Charles J. Hastings on "Relative Prevalence of Tuberculosis Under Good and Bad Housing Conditions" and by Lawrence Veiller on "A Legislative Program." The Conference of Tuberculosis Secretaries will hold a symposium on the 15th on "Programs of Anti-Tuberculosis Work," with addresses by Walter D. Thurber entitled "For the Cities," Dixon Van Blarcom, "For the Counties and Rural Districts" and Charles M. DeForest on "Red Cross Seals; How to Sell Them."

DECLINE OF PARISIAN BIRTH RATE.—Report from Paris on June 1 indicates that the European War is already beginning to show its effect on the declining French birth rate. During the month of May there were only 1850 births in Paris as compared with 3890 during the same month in 1914.

GERMAN SURGICAL ASSOCIATION.—The regular annual meeting of the German Surgical Association was held at Brussels from April 7 to 10 inclusive, and was attended by several hundred members. All the sessions were devoted to military surgery. The principal addresses were delivered by Drs. Garré, Körte, Payr and Bier.

EUROPEAN WAR NOTES.—Reports received by the United States Public Health Service show that from August 1 to December 31, 1914, there were in Austria 279 cases of typhus fever. Between January 1 and March 20, 3466 cases were reported, and from March 20 to April 3, 439 cases were reported in nine provinces alone. In Vienna there were 16 cases during the week ended April 10.

It is announced that the Harvard Dental School will soon send to Europe ten dental surgeons for service in the dental department of the French base hospital at Paris. It is intended that these experts shall take charge particularly of the treatment of gunshot fractures of the jaw and other injuries about the face involving a knowledge of oral surgery.

Fifteen women nurses from the French Hospital in New York sailed, on May 30, for Bordeaux, where they will join the French Red Cross.

It is announced that during June the University of Pennsylvania will send to the American Ambulance Hospital at Neuilly, Paris, a surgical unit to take charge of the American University ward in that institution during July, Aug-

ust and September. The personnel of this unit will consist of Dr. J. William White, Dr. James P. Hutchinson; neurologist, Dr. Samuel J. McCarthy; assistant surgeons, Dr. Edmund P. Piper, Dr. Walter S. Lee, Dr. Arthur G. Billings and Dr. Peter McC. Keating; bacteriologist, Dr. Samuel Goldschmidt Girvin, fellow in research medicine, University of Pennsylvania; nurses, Mrs. M. E. Spry, long chief clinic nurse of University Hospital; Miss Jackson and Miss Wagner; anesthetist, Miss Frazer. It is expected that Johns Hopkins University will send an expedition to take charge of this ward during October, November and December and the University of Chicago in January, February and March, 1916.

It is announced by the Serbian agricultural relief committee that it has recently sent to Dr. Richard P. Strong of the American Red Cross Sanitary Commission at Nish, Serbia, a shipment of materials valued at \$37,392.75. "It includes 125 tons of sulphur, 5000 gallons of kerosene, 2500 gallons of phinotas oil, 9800 pounds of paste flour, 750 iron pans, 500 Dutch ovens, one box of automobile tools, 10 sterilizers, 500,000 bichloride tablets, five tons of paper, 50 tons of plunge tubs, 80 packages of tents, 2700 cakes of soap, five barrels of alcohol, 500 gallons of formaldehyde, 100 gallons of pure alcohol, two cases of acetic acid, mercurial ointment and permanganate of potash, three cases of cholera vaccine and 596 packages of artesian well supplies.

"In addition, 43 cases of hospital garments, 83 cases of hospital supplies and 32 cases of clothing were sent to the Serbian Red Cross at Nish. Twelve cases of hospital supplies went to Dr. E. W. Ryan of the American Red Cross unit at Belgrade, one case of hospital garments and eight cases of supplies to Dr. Ethan Flagg Butler, at Geveglia and one case of cots to the Sanitary Commission."

On June 6 the totals of the principal New England relief funds for the European war reached the following amounts:—

Belgian Fund	\$260,874.08
Red Cross Fund	134,933.65
Jewish Fund	62,774.20
Polish Fund	46,668.59
Serbian Fund	31,842.25
British Imperial Fund	29,872.28
Belgian Red Cross Fund	13,721.00

The principal amounts contributed by various states to the St. George's Fund are as follows:—

Massachusetts	\$9,860.19
Pennsylvania	4,830.41
New Jersey	4,032.00
Connecticut	3,800.00
New York	3,173.57
Illinois	3,139.89
Pacific Coast	2,146.92
Michigan	1,785.95
Ohio	1,286.87
Rhode Island	1,200.45

BOSTON AND NEW ENGLAND.

MEASLES EPIDEMIC IN MILTON. An epidemic of measles is reported among school children in Milton, Mass. On May 29, 188 cases had occurred. No clue as to the source of the epidemic has been given.

MOUNT SINAI HOSPITAL.—The thirteenth annual report of the Mount Sinai Hospital records the work of that institution for the year 1914. The total treatments numbered 27,680, of which 6,039 were given free. There has been opened during the year a genito-urinary clinic. It is conducted on two evenings a week and has an average attendance of 28. A clinic for speech defects was organized in March, 1914, and has treated 14 patients, three of whom have been discharged as cured. The hospital is sorely in need of a new building. Its present quarters are wholly inadequate to take care of the patients who apply for treatment and every effort is being urged to make the erection of a much larger building possible.

BOSTON MILK AND BABY HYGIENE ASSOCIATION.—The Boston Milk and Baby Hygiene Association has recently issued an urgent appeal for funds for carrying on its regular work during the current season. The financial complications associated with the European War make the difficulty of paying the necessary amounts even greater than usual, and especial generosity is needed since the work of the Association is likely to be larger this year than ever before.

"Already the Association is caring for 24% more babies than ever before at this season, and the numbers are bound to increase. For the first four months of 1914, the infant mortality was brought down so that baby deaths were 72 fewer than in the same period of the previous year; but in the same period during the current year it was possible to diminish the deaths of babies under one year by only 11, as compared with last year. Conditions are even worse in New York, ascribed also to the lack of employment and proper nourishment, the infant deaths having actually increased in the first quarter this year to 3399, as against 3372 for the same period in 1914. In New York additional clean milk stations have been opened already to meet the increased need.

"The method which the Milk and Baby Hygiene Association feels to be effective, as well as by far the most economical, is to add nurses for temporary work from June to October in the milk stations where more babies are now registered than the regular nurse can properly supervise. Special funds are needed for four such "summer nurses" for the North End, the West End, East Boston and South Boston. Additional "well baby clinics" must be opened in several of the stations."

THE CRUISE OF THE ANDROS-COGGIN.—In the issue of the JOURNAL for February 4, we com-

mented editorially on the first six weeks' cruise of the revenue cutter *Androscoggin*, as a hospital ship for deep sea fisheries off the New England and Newfoundland coast. Since that time the *Androscoggin* has continued its highly efficient and successful work in this service and has recently returned to the Charlestown Navy Yard from a thirty-eight day cruise along the Provinces, during which she picked up three fishermen off the Sable Islands and two Canadians who were treated by the ship's surgeon. During the past five months the *Androscoggin* has cruised over 9,000 miles in the hospital service and has treated over 100 cases among fishermen, seven of whom were picked up at sea, the others being taken aboard at port stations.

HOSPITAL BEQUESTS.—The will of the late Charles W. Emerson of Newton, Mass., who died on April 4, has recently been offered for probate. It contains reversionary bequests of \$15,000 to the Newton Hospital and \$10,000 to the New England Peabody Home for Crippled Children.

PASSAGE OF THE DENTAL REGISTRATION BILL.—In the issue of the *JOURNAL* for April 15, we again commented editorially on the Dental Registration Bill then pending before the Massachusetts General Court. This bill has since been passed by the legislature and on May 28 was signed by Governor Walsh. The passage of this bill, which has been consistently advocated by the *JOURNAL*, was opposed chiefly by the present State Board of Registration in Dentistry on account of the so-called dental nurse clause. In the bill as finally passed this clause was so drawn as to eliminate the dental nurse from private practice and limit her work to the maintenance of oral hygiene in public institutions.

TRANSFER OF BOSTON QUARANTINE STATION.—On June 1 the transfer of the Boston Quarantine Station from local to federal control became effective and the administration of the station was assumed by Dr. Samuel Bates Grubs of the United States Public Health Service, who has been detailed for this duty. All the city employees in the quarantine service are taken over by the government and now become federal officials. The Boston Quarantine Station was established on Gallop's Island in 1860 and since the organization of the Boston Board of Health in 1872, has been under the administration of that body. The first hospital was erected on the island in 1873, and dormitories were built in 1892. During the year 1913, 795 vessels were inspected at quarantine and 174 cases of various diseases were treated at the station.

DECLINATION OF DR. CREEL AS HEALTH COMMISSIONER.—In the issue of the *JOURNAL* for May 13, we announced the acceptance by Dr. Richard H. Creel of the United States Public Health Service of an appointment as Health Commissioner

of the city of Boston. It is now announced that Dr. Creel has unfortunately found it necessary on account of his health, to reconsider this acceptance. His letter of refusal, stating his reasons for this action is in part as follows:—

"It is with much regret that I feel constrained to reconsider my tentative acceptance of your tender of the position as Commissioner of Health of Boston. The changed conditions which influence me to this decision are largely personal and chiefly a question of my physical condition. I have spent several long and trying details in the tropics, with various attacks of malaria always under adverse conditions.

"During this past month, subsequent to the onset of warm weather, I have again experienced the return of ill health. At the present I feel that I would not be able to assume charge of the work with a keen enthusiasm which would be so essential to success.

"I would feel a moral obligation to go forward with the work did I not realize that there are other men in this service and out of it that are available for the vacant position, men who will be only too eager to accept a post that carries with it such possibilities for professional advancement and honor. With such other available candidates, it would seem ill advised for one not up to the full standard of efficiency to attempt the position."

This declination on Dr. Creel's part is sincerely to be regretted and it is earnestly to be hoped that an equally judicious and satisfactory selection may be made of the next candidate to whom this important position may be offered.

HARVARD MEDICAL ALUMNI ASSOCIATION: TRIENNIAL MEETING, MAY 20, 1915.—A very successful and enjoyable meeting of the Harvard Medical Alumni Association was held on May 20th. In the morning the Massachusetts General Hospital, the Boston City Hospital, the Free Hospital for Women, and the Boston Psychopathic Hospital gave demonstrations in many of the departments with ward visits and special clinics in the operating rooms. These were much appreciated by a large number of men who showed a keen interest in the newer methods which were demonstrated.

A luncheon was served in the Museum of the Administration Building of the Harvard Medical School. About 180 men attended this luncheon which was furnished by members of the Harvard Medical School Faculty. The beautiful room with its valuable collections added much to the pleasure of the occasion.

In the afternoon the nearby hospitals, the Peter Bent Brigham, the Children's, and the Cancer Hospitals were visited. All the departments of the Medical School were open for inspection to the alumni while the classes were in session. Certain of the departments, such as the Physiological Department and the Department of Hygiene and Preventive Medicine, prepared

special demonstrations and gave short talks on the work which each man in the department was doing at the time. Considerable interest was shown in the new ideas which were being tested out, and many questions were asked. In the amphitheatre of Building D, three demonstrations were given with lantern slides.

In the evening the Triennial Dinner was served in the large room at the Harvard Club. Two hundred and twenty men were present. Dr. S. B. Woodward, President of the H. M. A. A., presided and introduced the speakers who were Dr. H. P. Walcott, member of the Corporation of Harvard University, Dr. E. H. Bradford, Dean of the Medical School, Dr. H. D. Arnold, Dean of the Graduate School of Medicine, Dr. Haven Emerson, Deputy Commissioner of Health of New York, Dr. F. W. Peabody, member of the China Medical Board, and Dr. Harvey Cushing, who has lately returned from the war in France and England.

The Triennial Meeting proved instructive and enjoyable and gave those who attended a chance to get in touch with the School in working hours, to have a glimpse of the new work that is going on, and to renew old acquaintances of Medical School days.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending June 1, 1915: Diphtheria 76, of which 8 were non-resident; scarlatina 117, of which 9 were non-resident; typhoid fever 4; measles 221, of which 3 were non-resident; tuberculosis 75, of which 1 was non-resident. The death rate of the reported deaths for the week was 15.86.

Obituary

SIR WILLIAM RICHARD GOWERS, M.D.
F.R.C.P., F.R.S.

DR. WILLIAM RICHARD GOWERS, who died on May 4 at London, was born in that city on March 20, 1845. He was early entered at Christ Church, Oxford, and, graduating from that college in his seventeenth year, was immediately apprenticed to a country surgeon at Coggeshall, Essex. Subsequently he pursued his medical education at University College and Hospital, London, receiving the degree of M.R.C.S. in 1867, that of M.B. in 1869, and that of M.D., with a gold medal in 1870. He was immediately appointed medical registrar to the National Hospital for the Paralyzed and Epileptic. During his student days he had served as private secretary to Sir William Jenner and continued in this capacity for many years thereafter. "The daily intercourse with that intellect," says Gowers, "was a privilege inestimable"; and apparently the influence of Jenner had a very marked effect in determining the career of his brilliant young assistant.

In 1873 Gowers was promoted to be assistant physician to the Hospital for Paralyzed and Epileptic, where he finally became full physician in 1880. He had already been appointed assistant physician to University College Hospital in 1872 and became physician there in 1883. Upon his retirement from the staff in 1888 he was appointed consulting physician. He also served for many years as assistant in clinical medicine at the University College Medical School and at a later date for several years, held a professorship in this subject. He became a member of the Royal College of Physicians of London in 1875 and a Fellow in 1879. In 1880 he delivered the Goulstonian lecture on "Epilepsy and Other Chronic Disorders," and in 1890 the Bradshaw lecture on "Subjective Sensations of Sound." He was elected a Fellow of the Royal Society in 1887.

From the very outset of his medical career Dr. Gowers was especially interested in diseases of the nervous system. As early as 1876 he edited the sections on the brain and spinal cord in the eighth edition of Quain's *Anatomy*. His earliest papers in the *British Medical Journal* were on chorea and the diagnosis and treatment of auditory vertigo. In 1876 also he published his first book, an essay on athetosis and post-hemiplegic disorders of movement, beautifully illustrated by drawings of his own. In 1877 he invented a hemoglobinometer, which was used in England until its replacement by the Thoma-Zeiss instrument. The solution which he employed, however, for blood corpuscle estimation, is still widely in use. In 1879 he published an important work on medical ophthalmology, in which he continued the work of Hughlings Jackson in emphasizing and elaborating the importance of the ophthalmoscope in neurology. The illustrations in this book also were all drawn by Gowers himself. In the same year he published another small book on pseudohypertrophic muscular paralysis.

In 1880 appeared what is, perhaps, Gowers' most famous work on "The Diagnosis of Diseases of the Spinal Cord," which went through many subsequent editions. It was in this work that he first referred to and illustrated the thirto unrecognized tract of fibres in the gray matter which he himself called the antero-lateral ascending tract, but which ever since has been known by his name. He discovered this tract while examining the spinal cord of a case in which the lower end of the cord had been crushed by a fracture of the spine, and described "a symmetrical area of slight ascending degeneration in the anterior part of the lateral columns in front of the pyramidal tracts." He believed the function of the fibres in this tract to be conductive of sensation.

During the years which followed, Gowers continued to combine his active professional life in hospital and private practice with further researches in neurological subjects and the story

of the later part of his life is essentially the chronology of his publications. In 1881 appeared his book on epilepsy, based on 1450 cases of his personal observation. The second edition of this work, published in 1901, contained the record of 3000 cases. In 1886 appeared his "Manual of Diseases of the Nervous System" in two volumes, which went through several editions and was later translated into German and Italian. In 1890 he delivered the Lettsomian Lectures before the London Medical Society, and on these based, in 1892, his work on "Syphilis and the Nervous System." One of his latest works was "The Borderland of Epilepsy," published in 1907.

As a result of his prolific and brilliant professional activities, Dr. Gowers soon acquired an international reputation and was made an honorary member of many foreign medical societies, including the American Neurological Association. He received the honor of knighthood in June, 1897, at the diamond jubilee of Queen Victoria.

He survived by two daughters and two sons.

LIEUT.-COL. CHARLES DALTON, M.D.

DR. CHARLES DALTON, an Irish army medical surgeon, who was wounded at Verneuil, France, died at Vieil Arcy on September 18, 1914. In the January issue of the *Journal of the Royal Army Medical Corps* is published a sketch of his adventurous and gallant career.

Charles Dalton was educated at Trinity College, Dublin, and qualified as a practitioner in 1888. He immediately shipped as surgeon aboard the Royal Mail Steamer *Cotopaxi*, and within a year was wrecked in that vessel when she struck a reef in the Straits of Magellan, foundering in eight minutes. Among the passengers aboard were two men who were paralyzed. Dalton carried them both to safety in a boat and rendered service of conspicuous gallantry in the rescue of the remaining two hundred passengers, not one of whom was lost. The French Government recognized this service by awarding him a medal of honor of the first class.

In 1891, Dalton joined the Royal Army Medical Corps and in 1897, while serving in the Northwest Indian Frontier expedition, saved the lives of a number of his men who were suffering from insolation by applying the constant immersion treatment in a stream of cool running water. In 1898, while serving in Sierra Leone, he was twice mentioned in dispatches for gallant conduct under fire. On one of these occasions he rescued a dangerously wounded lieutenant from within a few yards of the enemy's stockade under an extremely heavy fire.

Dr. Dalton served throughout the Boer War in South Africa and there, while attending a wounded comrade under fire, was shot through

the stomach and remained lying on the battlefield for 12 hours. He then dragged himself to the British camp, directed the sending of ambulances to remove other wounded men from the field and allowed himself to be operated upon only after all the others had been attended to. After surviving this experience, he returned to Ireland, where, in the succeeding years of peace, he became a busy country practitioner. He also indulged extensively in his favorite sport of steeple chase riding in which he was a noted and daring figure.

At the outbreak of the present European War, Dr. Dalton volunteered his services, and was sent out with the first expeditionary force as lieutenant-colonel in charge of general hospital No. 1. At the battle of Verneuil while carrying in wounded under fire from the field of action, he was struck by a shell and while lying on the ground was run over by a stampeding gun limber which crushed his left thigh. The wound became infected and he died on September 18. So brilliant and romantic a career seldom falls to the lot of the surgeon in military service, but the fearlessness and devotion shown in every emergency by Dr. Dalton, are examples of bravery often shown and seldom recorded.

Miscellany.

THE CALIFORNIA CLIMATE AND THE TREATMENT OF TUBERCULOSIS.

In the recently published February bulletin of the Medico-Chirurgical College of Philadelphia appeared an article on "The Climate of California," representing a lecture delivered by Dr. Guy Hinsdale of Hot Springs, Va., in the course on pharmacology at the college this year. This article presents an interesting study of the California climate with special relation to its adaptability to the treatment of pulmonary tuberculosis. There is presented also a diagram illustrating the average precipitation in inches, and its seasonal distribution at Los Angeles and at Mt. Lowe, during the periods from 1896 to 1902 and from 1904 to 1913. In conclusion Dr. Hinsdale quotes from an article of Dr. H. F. Ziegel (*N. Y. Med. Jour.*, Dec. 15, 1906) the following summary of the various climates of Southern California.

"1. The Mountain Climate.—Four thousand feet and upwards. Idyllwild, in Riverside County, is a good example. It is on the slopes of the San Jacinto mountain, at an elevation of 5200 feet in the Strawberry Valley. It is a mountain park twenty miles from a railway and abounding in pines, with a sandy soil, delightful, stimulating air, a substantial snowfall in winter and with all the characteristics of highest

oints of the Adirondaeks, except the absence of lakes and cloudy weather. Four thousand to 6000 feet of elevation may render any place more or less detrimental to the aged or those with any disease of the circulatory organs. For any cases of nervous disease it is excellent.

"2. The Foothill Climate.—Of the various climates met with in Southern California this possesses the most advantages with the fewest disadvantages. As a result of the moderate altitude—1500 to 3000 feet—there are less fog, less humidity, and fewer cloudy days than near the coast, the nearby mountains afford shelter from the wind currents, and consequently the diurnal ranges of temperature are reduced to a minimum. But any good climate depends upon something more than altitude—wind currents, rainfall, sunlight, humidity, proximity to the sea and mountains, etc. Of the formidable list of thirty-six climatic factors which Dr. Hann says ought to be embodied in a full discussion of the climatology of any locality, among the most important is geological formation. It is a common experience to have observed marked differences in places close together in which all those factors except the last mentioned are the same. In one place, if one sits outside late in the afternoon of summer's day, one notices the dampness and begins to feel chilled; in another place not many miles away, one can camp out at night without any ill effects. The secret of the difference lies in the character of the soil; the former place probably has a deep, slaty subsoil, while the latter is probably rocky with a sandy covering. Great upheavals, that once upon a time took place in the mountainous districts, have resulted in geological formations contributing largely to the fine foothill climate, which possesses the combined advantages of dry soil, dry air, and moderate elevation without the disadvantages of greater altitudes or the coast districts.

"3. The Desert Climate.—While possessing the advantages of dryness and equability, the desert regions of Southern California are, nevertheless unsuitable for climatotherapy, for they are very hot, and the dry winds are laden with alkaline dust, which is very irritating to the mucous membranes. Moreover, the desert lacks the conveniences of civilization. To obtain the combination of low altitude, considerable sunshine, dryness, as well as purity of the air and equability, it is necessary to go to New Mexico or Arizona.

"4. The Coast Climate.—This we dismiss with a word, having already seen that the humidity, fogs, and extremes of temperatures are serious objections to the marine climate.

"5. The Insular Climate.—The only one of the Channel Islands inhabited to any extent is Santa Catalina, which is about twenty miles west of the mainland. The sea air and considerable humidity are not an objection; this insular climate is amongst the best of all. Ninety-five per cent. of the days are sunshiny; the fog, so

frequent along the coast of the mainland, is seldom seen here, and the temperature is much more equable."

In this connection there is associated interest in another article by Dr. Hinsdale appearing in the issue of *The Child* for April, 1915, on "Open Air Recreation and Instruction," with especial reference to open air theatres, schools, hospitals and sanatoria in the control and treatment of tuberculosis in children. The author refers particularly to the work of the American Open Air School Association, which was organized on April 25, 1914, and since that time has studied actively the problems connected with the education of tuberculous children.

It is a society of practical open-air school workers in the United States, formed for the purpose of (a) coöperative study of the benefits of open-air schools and open-window classes established in various cities in America; (b) encouraging the establishment of similar fresh-air schools in other communities by gathering statistics and preparing reports for school boards and bulletins for the educational and medical press, newspapers and magazines; (c) the dissemination of knowledge concerning the causes of physical subnormality in children, and (d) the scientific study of ventilation and fresh-air supply of schoolhouses and schoolrooms. There are 136 members. An illustrated bulletin is published. The meeting held at Philadelphia, Sept. 22 to 29, was in conjunction with the Fourth International Congress on Home Education. Dr. W. W. Roach, of Philadelphia, is the secretary.

MEDICAL CONTRIBUTIONS BY GERMAN MILITARY SURGEONS.

A CORRESPONDENT in a recent issue of the *British Medical Journal* presents a report of recent medical contributions by German military surgeons based on experiences in the present war, the following extracts from which seem of interest:—

"Professor Goldscheider, a physician with the army, reports on the vaccine treatment of typhoid, having been induced to try it by the experience of a prophylactic dose which happened to fall in the prodromal period. The Marx vaccine was used in a dose of 250-750 million bacilli. Fifty-seven cases were so treated, and in 55 out of 70 injections a remission of fever followed on the first to third day, lasting an average of two days, and sometimes coinciding with the final defervescence. In the remaining cases there was an increase of fever, but not of a serious character. Otherwise no special effect on symptoms was observed, the local reaction being less than in the healthy subject. Nor was any influence of a previous prophylactic inoculation to be observed. Unfortunately in the more severe cases

of disease only the smaller doses of vaccine could be employed. Dr. M. Rhein records a smaller series of cases at Strassburg, using the Halle vaccine diluted 1 in 20, a dose of 0.6 to 1.4 c.c. into the ulnar vein. In 94% of patients a rise of temperature with rigor followed in from half an hour to 2½ hours with subsequent rapid defervescence. Nine cases out of 33 were completely successful with one injection, another case with two—in all a high eosinophilia (100-200 cells per c.mm.) being noted along with an absolute leucopenia.

"From Professor Ziegler's hospital at Freiburg i. Br. comes an encouraging account of an attempt at auto-serum-therapy. Fifty c.c. of blood were withdrawn, phenolized, and 2.5 to 4 c.c. of the serum injected daily *sub cutem* on the outer side of the thigh. In 14 out of 18 cases improvement was rapid, the temperature falling in 2.5 days, often with marked sweating, coma especially clearing after three or four injections, the patients expressing great relief. The cases so treated were nearly all severe ones, but were all able to be up within four weeks; twice a sudden drop of 2-5° C. was noted with small but not frequent pulse, amenable to camphor. This, as well as the therapeutic effect in general, is to be probably ascribed to bacteriolysis, an explanation given by Hammerschlag as early as 1893. Professor Matthes, of Marburg, is working with a trypsin solution of typhoid bacilli filtered clear as an immunizing agent, which has already given encouraging results with guinea-pigs. Writers all assume that the merits of the prophylactic inoculation are still on trial, and that it will still be long before exact figures are available. Of immediate effects the percentage of serious harm is very low. Under Professor Penzoldt at Erlangen, out of 4000 injections in 1780 persons only 6.8% had fever above 38° C. and 0.2% above 39° C. In two cases, aged 28 and 33 years, thrombosis occurred once in the forearm, and once an embolic thrombus of the leg. In a third case, a few hours after the second prophylactic injection, the temperature rose to 39.6° C., followed by typical splenic enlargement, roseolar rash, and bronchitis and exitus 14 days later from intestinal hemorrhage. Menzer had already recorded a case with diarrhea and roseola, and Professor Penzoldt inclines to the assumption of an aggressin action of the dead bacilli on a concurrent living infection. At Strassburg Professor Schlesinger, out of 1340 injections, never saw any serious local reaction; after the three injections 5%, 3%, and 2%, respectively, were unfit for service on the following morning, the indisposition differing from influenza in that improvement was almost always noted within 24 hours. Urticaria was not very uncommon, and in 5 to 8% the spleen was enlarged. Professor Weichardt (Erlangen) finds that local reaction is slighter with the newer vaccines sterilized at a lower temperature, there being no appreciable risk in their employment, as 0.5%

phenol kills any living bacilli in the vaccine within 24 hours. Smaller doses at longer intervals will probably immunize as fully as large ones at shorter intervals."

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING MAY 29, 1915.

CONTRIBUTIONS.

Dr. J. E. Talley, Philadelphia, Pa..... \$ 10.00
Dr. Leonard W. Ely, Palo Alto, California... 5.00

Receipts for the week ending May 29.....\$ 15.00
Previously reported receipts.....6993.50

Total receipts.....\$7008.50

Previously reported disbursements:

1625 standard boxes of food @ \$2.20..\$3575.00

1274 standard boxes of food @ \$2.30.. 2930.00

213 standard boxes of food @ \$2.28— 485.64

Total disbursements.....\$6990.84

Balance \$17.66

F. F. SIMPSON, M.D., *Treasurer*,
7048 Jenkins Arcade Bldg.,
Pittsburg, Pa.

Owing to the fact it is not permissible to ship salt into Belgium, a recent change in the price of the boxes of food from \$2.30 to \$2.28 caused an error in the report of May 1st. The correction is made in this issue.

A number of contributors have suggested that the full address of the Treasurer be published with the reports, as many are still in doubt as to where to send contributions for the Belgian profession.

RECENT DEATHS.

DR. JOHN RICE ELDRIDGE, who died recently at Berkeley, California, was born in Milford, Mass. He received the degree of A.B. from Harvard in 1888, and that of M.D. from the Cooper Medical College of California in 1894. He subsequently practised his profession in San Francisco, Fresno and Berkeley. He is survived by his widow, one daughter and one son.

DR. GEORGE H. HUTCHINGS, who died on May 30 at Woburn, Mass., was born at Charlestown, Mass., in 1840. He studied medicine at the New York and Cincinnati Eclectic Medical Colleges, from the latter of which he received the honorary degree of M.D. in 1861. He practised his profession successively at Wilmont, N. H., Boston, Townsend and Woburn, Mass. He is survived by his widow and by one son, who is also a physician.

DR. JAMES H. JOYCE, who died recently at Salem, Mass., was born in that city in 1880. He received the degree of M.D. from the Tufts Medical School in 1903 and since that time had practised his profession in Salem, where he had served as city physician. He is survived by his widow.

DR. SUMNER CARRUTH SAVILLE died at Cambridge Mass., on May 27, aged 48 years. He was a native of Boston and a graduate of Harvard in the class of 1891 and of the Harvard Medical School in 1894. He had an office at 34 Newbury Street, Boston. He was unmarried. Dr. Saville was a Fellow of the Massachusetts Medical Society and a member of the Boston Medical Library and the Harvard Medical Alumni Association.

The Boston Medical and Surgical Journal

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June 17, 1915

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Massachusetts Medical Society.

THE SHATTUCK LECTURE.

AN ANATOMIC AND MECHANISTIC CONCEPTION OF DISEASE.*

By JOEL E. GOLDTHWAIT, M.D., BOSTON.

THE subject which has been announced for this, the twenty-sixth lecture given under the conditions of the bequest made by Dr. Shattuck, was chosen after much consideration as being of broad general interest and as having to do with the fundamentals of medical knowledge. It seemed possible that such a consideration might be of sufficient importance to be worthy of the occasion, and if it be so considered it will be a satisfaction to me, as being a slight return for the honor which you have conferred upon me in selecting me as your speaker.

The basis of that which is here presented is work which has been carried on for a number of years in the attempt to find the cause of the chronic disease conditions for which the orthopedist is consulted. A fairly exhaustive pathologic investigation failing to show more than the nature of the lesion, with similar experience from the bacteriologic and the biochemical investigations, led to the study of the fundamental anatomic conditions existing in patients afflicted with these diseases, with results which have been increasingly more suggestive the farther the study has been carried.

* Delivered before The Massachusetts Medical Society at Boston, June 8, 1915.

It is this study which represents the first part of this paper and which has been reported in part from time to time by the writer in articles which have called attention to the variations in the formation of the viscera and skeleton, as well as to the peculiarities of the particular function.¹

In this investigation it soon became evident that the anatomic formation described in the textbooks as normal to the human being, rarely exists in the individual having the common chronic disease, and in the study which naturally followed not only were the different anatomic types recognized, but in the hope of better understanding the variations found, the structure of the lower orders of mammals was studied with considerable care.

Recently, with the assistance of Dr. John Bryant, not only have these anatomic findings been verified in connection with his work,² but the literature has been carefully examined and the fact that most of the elements to be presented have already been recorded has served to increase the belief that the observations here stated are correct and that the appreciation of these elements is absolutely essential if any impression is to be made by our profession upon the great field of chronic medicine which today represents such a reproach to us.

The fact that no more has been accomplished as the result of these numerous contributions to medical literature in the past is probably due to the fact that most of the work is fragmentary in character and that it is only by piecing together many of these separate contributions that the significance of each with the great importance of the whole is realized.

It is the hope, that in this communication, the independent observations which have been carried on by the speaker, may be so strengthened by the similar findings of these other observers that this knowledge may be generally applied to the study of our patients.

In such an investigation, while the first thing that impresses one is that the so-called normal type of human being rarely exists in the chronic patient, the second is that the variations from the normal group themselves into two general types from which again there are many variations, but that if the original type is appreciated the variations from it are easily traced and understood.

In order to better understand the types to be described, it is well to consider for a moment that which from the textbooks we call normal.

Normal Human Type. (Figs. 1, 2 and 3).



FIG. 1.
The normal human type.

There is very little variation to be found in the works of anatomy in that which is called normal. The torso is of moderate length and of moderate breadth. The thorax is full, and moderately rounded, the upper abdomen is rounded and in circumference about the same as that taken just above the nipple. The costal border is formed in an angle from 70° to 90° . The diaphragm is high and there is generous space under the ribs for the viscera. All of the abdominal viscera, except the lower portions of the colon with the sigmoid and part of the small intestine, are above the umbilicus. Around the viscera and representing a definite part of their support, as well as giving much protection from

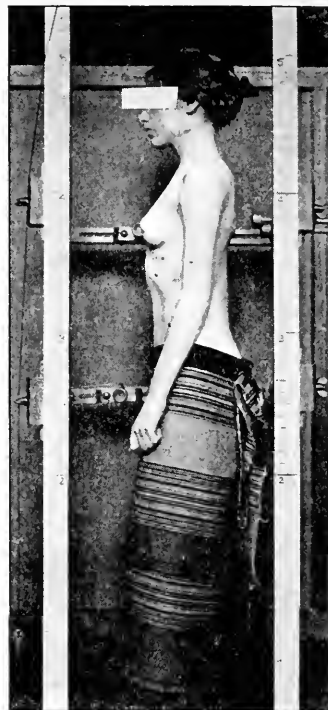


FIG. 2.
Normal human type, showing the normal inclination of pelvis, normal elevation of ribs, normal position of shoulders, etc.



FIG. 3.
Normal human type, showing the moderate breadth of the body.

trauma to the sympathetic nerves, ganglia and blood vessels, are well-defined masses of fat. The lower abdomen is flat, while the upper abdomen is firm and rounded, there being no marked

depression under or inside the edge of the ribs. The spine shows a mild curve forward in the lumbar region, with the inclination backward from the mid-lumbar, this resulting in the general inclination of the abdominal cavity of 30° downward and forward from the perpendicular. The pelvis, in the axis of its cavity, is inclined downward and backward about 60° from the perpendicular so that the two axes form nearly a right angle.

Of the special viscera, the stomach is of the pear shape, and is placed well up under the ribs, occupying the uppermost part of the abdominal cavity upon the left side. In this position the discharge of its contents into the duodenum requires but little effort.

The small intestine is about 20 feet in length, is of good calibre and muscular tone. The large intestine, of five to six feet in length, is adherent to the posterior abdominal wall upon the right side until it reaches the region of the liver, when it turns forward and inward, crossing with a slight downward sag to the splenic flexure well up in the left side of the abdomen behind the stomach, from which point it is again attached to the posterior wall (retroperitoneal) until it reaches the sigmoid, where, after a few turns, it becomes the rectum. The transverse part of the colon is attached to the liver upon the right side and to the stomach in the center of the body and upon the left side. The stomach and liver are naturally attached to the diaphragm, and the suspensory ligament of the diaphragm is the pericardium, especially the right side, which is finally attached to the anterior part of the low cervical spine.

In the upper part of the abdomen is the solar plexus of the sympathetic system, the ganglia being so placed that when the organs are in their proper position there can be the least possible pressure upon or irritation of them.

These and many other elements are described in the anatomy as normal, and while this type does exist very commonly among those who are well, nevertheless, among the individuals who consult the physician, especially with chronic disease, this type is not often seen, and it must be hard to understand the conditions present in our patients unless their special structural formation is known.

Of the variations from the normal there are two well marked types which are easy of recognition and are here described.

Splanchnoptotic (Glenhard); *Congenital Visceroptotic* (Goldthwait,¹ Smith³); *Carnivorous* (Treves,⁴ Werner,⁵ Bryant²); *Hyper-ontomorph* (Bean⁶); *Macroscelous* (Montessori⁷); "Narrow-Backed" (*Industrial*). (Figs. 4, 5, 6 and 7).

The type of human being for which the above and other terms have been used is essentially different from the so-called normal in most of its characteristics. The whole figure is lighter, not

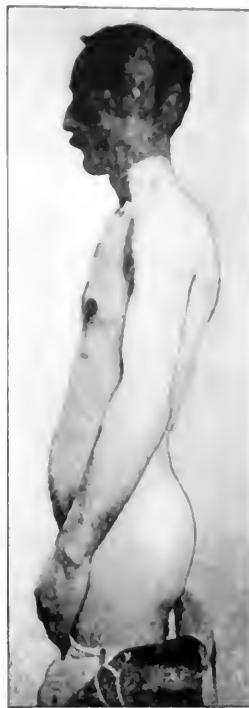


FIG. 4.

The slender congenital visceroptotic or carnivorous type, showing the proportionately greater length of body, the increased low lumbar curve, forward inclination of pelvis, forward position of the shoulder, flat chest, prominent lower abdomen, narrow upper abdomen, forward position of head, etc.



FIG. 5.

Slender type, showing the same features as in Fig. 4, except an increase in the forward inclination of the pelvis and more marked forward position of the shoulder, and a more completely flattened chest.



FIG. 6.

The congenitally visceroptotic type, showing the extremely slender back.



FIG. 7.

The slender or congenital visceroptotic type in child, showing the same general characteristics as in adult.

only that there is less fat, but the skeleton is lighter and more slender in form. The skin is soft and delicate. The hair is more abundant in

the usual places and frequently shows on parts where it is not normally seen. The individual is usually either tall and slender or small and delicate. The head is proportionately large, the face and jaw are narrow. The palatal arch is high. The adenoid and tonsillar tissue is apt to be excessive. The ears are usually large and prominent, projecting outward and forward. The torso is longer in proportion than the so-called normal and is also narrower. (Fig. 6). The increased length is partly in the thorax, but chiefly in the lumbar region. The ribs are usually longer than is normal, the tenth rib is almost always free, and when seen in the adult, the downward inclination of the lower ribs is very marked, they at times, in the standing position, touching the upper part of the ilia. The spine is smaller in size than normal and the lumbar vertebrae are more like the so-called normal dorsal vertebrae in shape, the body being of about the same width laterally as it is deep antero-posteriorly. (Fig. 8). There are fre-

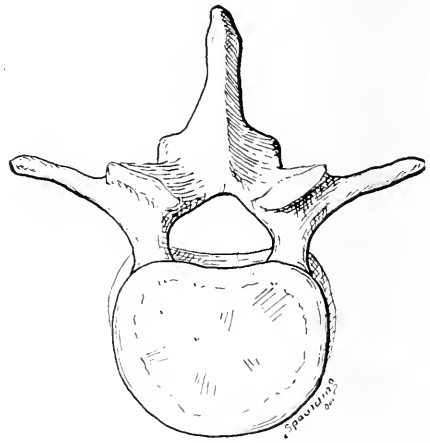


FIG. 8.

Lumbar vertebra in slender type, showing small body to the bone, with slender laminae and with flat articular processes.

quently six vertebrae in the lumbar region with the full number of sacral vertebrae, this being one of the reasons for the greater proportionate length of the body. The transverse processes are small and short and the articular processes are usually flat (not crescentic). Because of this formation, the lumbar spine is much more flexible than the normal type and it is this anatomic type from which the fancy dancer, the hurdler and acrobat are developed.

The thorax is of fair size, the lungs are apparently smaller than normal, and the smaller size of the heart is easily demonstrated by the x-ray. The abdominal viscera have peculiarities in shape and attachment unlike the normal human. The stomach is long and tubular, instead of the normal pear shape. Its attachments are less firm, so that the possible downward displacement in standing is much greater than normal. The duodenum is usually attached to the normal position, but this is not constant. The small intestine as a whole is much shorter than normal,

containing from 10 to 15 feet instead of the normal 20 feet, the walls are less thick, and the lumen smaller. According to Bean,⁶ the length is from 12 to 15 feet; Swain⁸ from 10 feet up; Bryant² from 10 to 15. The mesentery is longer than normal, so that in standing the small intestine is almost entirely in the upper pelvis or lower abdomen. The large intestine is shorter than normal, from three to five feet, and much more mobile. Almost always upon the right side there is a free mesentery so that this portion may change its position easily, and frequently the left side also has a mesentery, so that in the upright position the entire colon lies below the crests of the ilia. The most common condition, however, is with the normal retroperitoneal position upon the left side with the right side free. The transverse part of the colon is usually attached to the stomach, which means that it will be found below the position of the stomach, even though the stomach may have its lower border in the pelvis. With the transverse colon, while it is usually attached to the stomach, it frequently has an entirely free mesentery, as is natural with even the purely normal type in the early embryologic state. In this type the vermiform appendix is usually well developed, while in the next type to be described the appendix apparently is much less developed, which may in part explain the common occurrence of appendicitis in the thin, slender individuals. With this type of anatomy there is very little retroperitoneal fat, palpation of the flanks is easy, the kidneys are naturally mobile, the liver is smaller and is more loosely attached than normal.

It is this type of anatomy in which the scaphoid type of scapula (Graves⁹) is found. The muscles are formed of the long and slender fibres. The extremities vary in length as one would suppose in studying comparative anatomy, the carnivora at times having very long legs, as the greyhound, or very short legs, as the otter, but they are usually longer than is considered normal and both arms and legs are relatively slender. The feet are slender and often of unnaturally high arch. The hands are slender but long, the fingers being very slender and tapering. While this type is usually thin, at times there is much accumulation of fat. If this is present it usually develops rapidly, disappearing at times equally rapidly, and the fat is always soft with very little connective tissue and suggests poor health.

Herbivorous (Treves,⁴ Werner,⁵ Bryant²): "Broad Backed" (*Industrial*); *Meso-ontomorph* (Bean⁶); *Brachyscelous* (Montessori⁷). (Figs. 9, 10, 11 and 12).

Upon the other side of the normal human type, and in marked contrast to the slender, carnivorous type, is the heavily built, broad backed type of human, in which so many of the characteris-



FIG. 9.

The heavy or extreme herbivorous type, showing the large, heavy build of the body throughout, the relatively straight position of the pelvis, the backward bend occurring in the upper lumbar region rather than in the low lumbar, showing the round-shaped head, flat ear, broad neck, with the shoulder well back on the thorax.

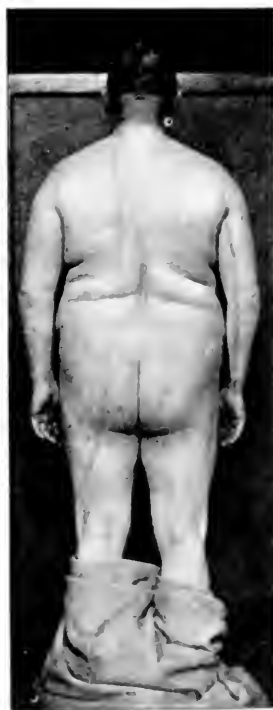


FIG. 10.

The broad backed or herbivorous type, showing the extremely broad body.



FIG. 11.

The broad, heavy type, showing all the general characteristics of Figs. 9 and 10.

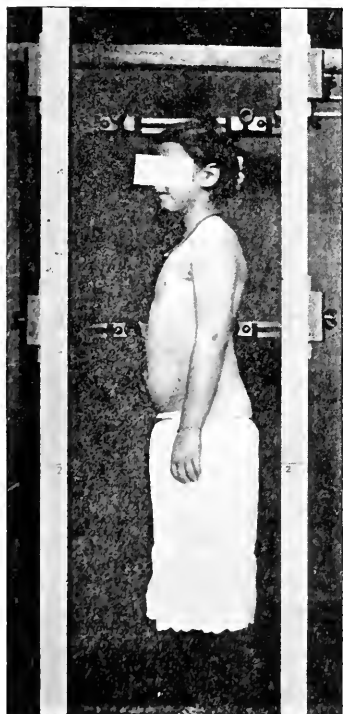


FIG. 12.

The broad, herbivorous type in the child, showing the same general characteristics of position of pelvis, curves of spine, position of shoulder, high chest, prominent upper abdomen, broad face, flat ears, as in Figs. 9, 10, and 11. The position of hyperextension at the dorso-lumbar juncture is well shown in this figure.

ties are similar to those found in the herbivorous creatures that this term has been used for their designation.

In this type the body is built upon much heavier lines throughout. The skeleton is larger in proportion and heavier in structure. The muscles are large with coarse fibres. The skin is coarse with scant growth of hair, which is lost early. There is an excess of fat throughout the body, but this is bound together with much connective tissue so that the flesh feels hard and firm in contrast to the soft, flabby feel such as is peculiar to the slender type. The head is round, the face is broad, the jaw is square, the ears are usually placed flat against the side of the head, and as a rule are not very large. The neck is short and thick, the shoulders are broad and square. The body as a whole is broad and relatively short. The chest is larger both in the lateral and antero-posterior diameters than the normal. The diaphragm is high, the costal border is formed in a broad angle, rarely less than 90° and sometimes more. The tenth rib is usually attached to the conjoined cartilages in front and the last two ribs are relatively short. The lumbar region is short, partly because of the frequent presence of only four lumbar vertebrae and partly because the sacrum is set well down between the wings of the ilia. The abdominal cavity is broad and deep. The stomach is large and pear shaped. The duodenum is attached as in the normal. The small intestine as a whole is much longer than the normal, and ranges from 25 to 39 feet (Bryant²). The large intestine is larger and longer than normal, from five to eight and one half feet (Swain³), with the retroperitoneal attachment of the ascending and descending portions, the added length showing in the longer transverse portion and in the sigmoid. The liver is large but well up under the diaphragm. There is much retroperitoneal and general abdominal fat so that the kidneys are well held in place and the sympathetic ganglia are well protected.

The joints in this type are much less flexible than in either of the other types, the individuals as a whole being strongly and heavily built.

The spine is broad and heavy throughout, but in the lumbar region this is especially noticeable. The lateral diameter of the vertebral bodies in this region is considerably greater than the antero-posterior (Fig. 13), the articular processes are strong and large and almost always of the crescentic type. The transverse processes are long and broad, and the process of the last lumbar frequently forms an articulation (the lumbo sacral transverse articulation) with the top of the sacrum. The long and broad transverse processes upon the lumbar spine are similar to that which is found in the herbivorous animals and which produces the lateral rounding of the back seen in all the hoof footed creatures. This formation apparently furnishes protection

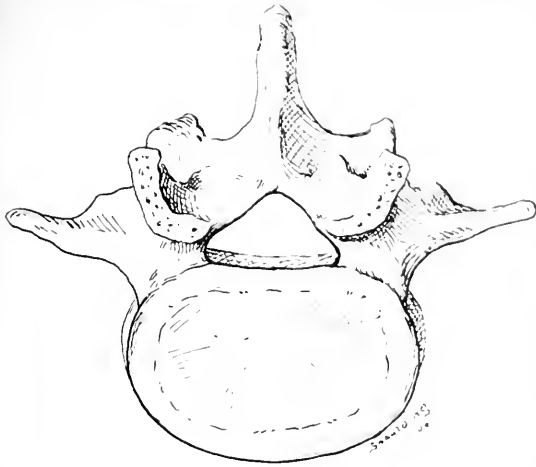


FIG. 13.

Lumbar vertebra of heavy or herbivorous type, showing the broad body and the heavy laminae.

and attachment for the many coils of intestine in the abdominal cavity.

Because of the shape of the vertebrae and the character of the articulation with the sacrum, there is less lumbar curve forward than is present in either of the other types (Figs. 1 and 2 and 4 and 5), and the forward inclination of the pelvis is also less. The axis of the sacrum is more nearly perpendicular. In this type not only are the wings of the ilia higher than in the normal so that the transverse process of the last lumbar articulates not only with the sacrum, but also at times with the ilium, and in a few cases the transverse process of the vertebrae above also rests against the ilium or has strong ligamentous attachment to it.

The extremities in this type vary in length as one would expect from the study of the comparative anatomy of the herbivorous creatures, but are always heavy. The legs are large, the knees are straight, the feet are broad in proportion to length, and the arch, while it may be very strong is usually quite low. The arms are heavily built, and the shoulder attachment is well back upon the thorax, giving the square shoulder appearance. The hands are broad and "chubby," both in the palmar portion and in the fingers.

Spinal Motions of the Different Types.

Because of the different structure of the bones of the spine, the motions must vary. In the normal, in bending forward the spine is well rounded and laterally there is some motion beginning at the lumbo sacral juncture and extending up to the low dorsal region, while in backward bending considerable motion is allowed. In the carnivorous type this is similar, only the amount of motion is much greater, as would be expected from the description of the bony formation of the type. With the herbivorous type, as must be apparent, the spinal motions are much less free. In this, the forward bending is made largely at the hips, there being but little in the spine. Laterally practically

no motion is allowed except at the dorso lumbar juncture, none whatever being allowed in the low back if the lumbo sacral transverse joint exists. If this exists upon one side, no motion at that region will be allowed to that side, while to the other side slight motion may be allowed. In backward bending very little is allowed, and if the lumbo sacral transverse joint exists, none will be allowed at the lumbo sacral juncture.

Such are the three general types which are common in the human family, and the fact that such types exist there can be no question if the passersby upon the street are noticed, even if one is not willing to accept the statements of those who have studied anatomy in this way. The thin carnivorous person is there side by side with the broad, full faced herbivorous person, with the normal human also present, and the characteristics are so distinct that nothing more than the glance is necessary to recognize the special form. The characteristics are equally apparent in childhood as in adult life, as is indicated by the accompanying illustrations.

The difference in the types and the fitness of each for different forms of work is already known, and a person who is at the head of an organization employing large numbers of laborers states that when an order for laborers is given it is expected that it will indicate so many "broad backs" or so many "narrow backs." The "broad back" is fitted for the ordinary heavy work, while the "narrow back" is fitted for the work requiring greater agility, such as climbing poles or trees, prospecting, running the lines, etc. The "broad back" carries the heavier load, but the "narrow back" carries his lighter load more rapidly.

The difference in the anatomic types is also recognized, consciously or unconsciously, in art, and nothing can be more perfectly normal than the early (not always the late) Greek figures, or Michael Angelo's "David," or William Hunt's "Bathers." The type which Rubens almost always depicts is the heavy, full blooded herbivorous type, while the slender, carnivorous type is the one depicted by Botticelli and Fra Angelico, or by Puvis de Chavannes of the modern school.

The fact that such types exist, but that they also have different characteristics which should be recognized in their training, is shown by Dr. Montessori in her book, "Pedagogical Anthropology," in which the pictures of the types are shown and the intellectual characteristics discussed.

In athletics also the appreciation of the different physical types is clearly understood. The hurdler or the runner is usually of the normal or the slender type, while the hammer thrower, the shot putter or the wrestler is usually of the heavy type. The heavy men are usually found in the line of the football team, while in the backfield the more slender and agile persons are found.

The types exist, and in a very large number of instances the types are pure, the carnivorous being carnivorous throughout, the normal human being the normal human throughout, and the same is true of the herbivorous. In other instances, however, the types are mixed, and it is here that the greatest difficulty exists in understanding the symptoms or in planning the treatment. A carnivorous type in general build and viscera may have an herbivorous type of spine, a combination which is quite common in women. A carnivorous type of stomach and intestine may exist with a normal liver and kidneys, in so far as shape and position are concerned. The normal type in general may have one or many of the characteristics of either the carnivorous or the herbivorous. The herbivorous type may show characteristics of either of the others and probably the most common variation in this type is the smaller spine and the imperfectly attached colon, but of the full length.

That such differences exist in the anatomic formation of members of the human family there can be no question, and it is not unreasonable to expect such differences if the biologic principles of the development of the race are considered. The human being as the highest type of mammal naturally inherits something of the strains which have shown themselves in the various species through which the advance of the mammalian group has occurred, and it is only by studying comparative anatomy that the various differences of type can be understood.

From the purely medical point of view the recognition of these different types is important since the types apparently carry their own potential of disease. The tuberculous and the infections in general, the nervous diseases and acute mental disorders, the hyperglandular disturbances, the progressive anaemias, the atrophic arthritis, many of the intestinal disorders, etc., naturally are associated with the slender type. The arterio-sclerosis, hypertrophic arthritis, gout, diabetes (not the insipidus), chronic disease of the kidney, gall stones, the prostatic hypertrophy, the degenerative mental disorders, etc., are common to the heavy type. The suggestiveness of this in treatment must be obvious.

Habits of Posture in the Different Types and the Effect upon the Physiology.

Not only has the study of the chronic patient shown that the different anatomic types exist, but that this alone can hardly explain all the phenomena. The more the problem is studied, the more evident it becomes that the life of the creature as an erect biped is a very different thing from that of the quadruped in so far as the function of the different parts is concerned.

One of the penalties that the human being is forced to accept in his being the highest type of mammal, is that in locomotion, with the body used as an erect biped, gravity is constantly operating to drag the organs downward out of

their normal position, as well as to draw the upper part of the body downward and forward into positions which must mean strain and weakness. This element, together with the anatomic form, seems many times sufficient to cause the conditions seen in chronic medicine.

The counteracting element, to offset such a handicap and prevent the race from being irreparably harmed, is the intelligence with which the human being is peculiarly endowed. The real purpose of such a paper as this is to help in the training of this intelligence so that life may be a period of wholesome, healthy development, with the fullest possible energy available for whatever stress to which the individual may be subjected.

The way the body is used is of quite as much importance as the structure of the body itself. Either type has the potential of good health if used rightly, but each has an equally definite potential of disease if the proper relationship between the many parts is not preserved. With the normal type it is naturally easier to maintain this relationship, but the possibility of not maintaining it is painfully apparent as one goes among one's fellow men. With the other types the special postures or the form of the maladjustment naturally differs as one would expect from the structure.

Since the pathologic changes which are seen are apparently due very largely to this imperfect adjustment of the parts, it is of the first importance that the postures or special elements of maladjustment which are peculiar to the different types should be appreciated. It should also be remembered that with the chronic patient the large majority of the cases fall into the slender, congenital visceroptotic type or the broad, herbivorous type.

The Normal Human.

When the body is used rightly (Fig. 1 or 2), all of the structures are in such adjustment that there is no particular strain on any part. The physical powers are at their best, the mental functions are performed most easily, and the personality or spirit of the individual possesses its greatest strength.

When used rightly, or fully erect, the feet, knees, hips, spine, shoulders, head and all the portions which represent the frame of the body, are used in balance, with the greatest range of movement possible without strain. In this position the chest is held high and well expanded, the diaphragm is raised, and the breathing and heart action are performed most easily. The abdominal wall is firm and flat, and the shape of the abdominal cavity resembles an inverted pear (Forbes, Williams¹⁶) (Fig. 14), large and rounded above and small below. The ribs have only a moderate downward inclination. The subdiaphragmatic space is ample to accommodate the viscera. In this position, also, there is no undue pressure upon, or interference with, the pelvic

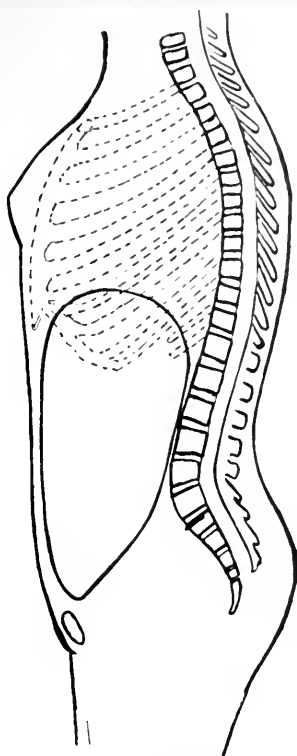


Fig. 14. (Williams.)

viscera or with the large ganglia at the back of the abdomen and in the pelvis.

Relaxed Position.

If the body is drooped or relaxed, so that the shoulders drag forward and downward, the whole body suffers, the weight is thrown imperfectly upon the feet, so that the arch must be strained; the knees are slightly sprung, which shows by the crepitating joints; the pelvis is changed in its inclination, with strain to the sacro-iliac joints and low back. The increased forward curve of the upper dorsal spine results not only in strain to the intraspineous ligaments, but also forces the shoulders forward, with frequent irritation of the bursae about the shoulder, or compression of the brachial plexus, with pain and neuralgias in the arms, while the craning forward of the head must result in strain to the posterior part of the cervical spine.

In this position the chest is necessarily lowered, the lungs are much less fully expanded than normal, the diaphragm is depressed, the abdominal wall is relaxed, so that with the lessened support of the abdominal wall, together with the lowering of the diaphragm, the abdominal organs are necessarily forced downward and forward. When this occurs the possibility of mechanical interference with the function of the organs is not difficult to imagine, and it becomes apparently a mere matter of chance which organ is affected.

The thing that is important in the interpretation of the many symptoms which the patients

describe is that the body is most intimately related in its different parts so that no one part can be used wrongly without the body as a whole suffering. For this reason if these various groups of symptoms are to be considered as purely local and distinct lesions the results are sure to be unsatisfactory. The body as a whole should be considered and not just the chest or the abdomen or the feet or the back or any one part, and it should be considered with reference to use in the different positions in the routine of life, especially those which are maintained for long periods, the occupational postures. In sitting it is perfectly possible to sit so that the trunk is in practically the same shape and with the different parts in practically the same relation, as they are when the body is used fully erect. At the same time in sitting it is very common to have the body markedly drooped, so that the body is rounded forward with the lumbar spine entirely reversed in its curve, with the ribs low, so that the thorax practically telescopes into the abdominal cavity. When such a position is studied with reference to the mechanics of the function of the organs the wonder is not that disturbances result, but that the disturbances are not more marked.

In such a study of the mechanics of the physiology, the positions assumed when the patient is lying down should be investigated. It is perfectly possible to produce practically the same effect upon the shape of the body and upon the thoracic and abdominal cavities that is present when the patient is sitting in the slouched position, if when lying down several pillows are placed under the head and shoulders, as is so frequently seen. In such a position naturally the breathing and circulation, the digestion, and the other physiological functions cannot go on rightly, and the restless, dreaming sleep is many times due to no other cause than this.

The importance of the proper relationship of the parts should be borne in mind under all conditions, and especially at the times of occupation or when the postures are assumed for continuous periods. It is under such conditions that naturally the greatest harm results, and it should be remembered that irrespective of the type, the postures which are assumed as the body is used determine very largely whether the individual is to be well or ill. *The most perfect, anatomically, may have the poorest health, while the most imperfect, anatomically, may have good health.* Fig. 15 is of the normal type as is shown when the body is held erect (Fig. 16) but the posture commonly maintained (Fig. 15) suggests very little of normal vigorous health.

The postures which are assumed by the other anatomic types are perfectly characteristic, so that once they are appreciated, the posture itself very largely indicates the type of anatomy to be found in the individual. It is always to be remembered that while the type is present at

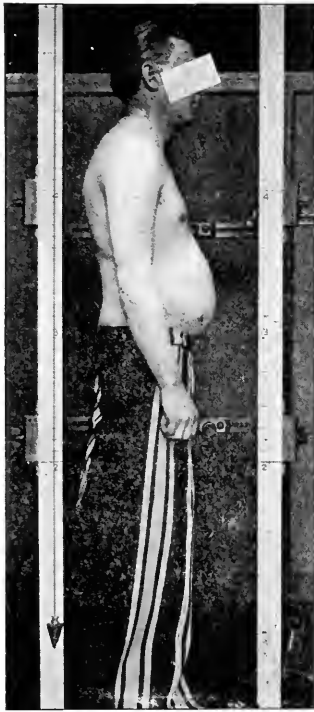


FIG. 15.

The normal human type, with acquired habits of bad posture, with marked visceroptosis, drooped shoulder, etc.



FIG. 16.

The same case as Fig. 15, except that the body is held at attention, showing the way the viscera are drawn up under the diaphragm, giving the normal lines of the body when the body is held erect.

the time of birth, that the extreme characteristics which are seen in adult life are largely the result of stretch and strain due to the downward

displacement which is the rule if the body develops without guidance. As long as the child remains a quadruped, as it is in the first two or three years of life, the special peculiarities are of very little concern, but as soon as it begins to assume the erect posture for long intervals the peculiar postures begin to show and the symptoms which naturally result therefrom begin to develop.

The Congenital Visceroptotic or Carnivorous Type.

In the slender type, while the ideal standing position is the same as with the normal human, the natural position which will be assumed is one in which the general relationship of the parts is much disturbed (Figs. 4, 5 and 7). In this type the chest is flat, the usual standing position being with the chest at full expiration so that all breathing is done from the low point. The sternum is more nearly perpendicular, instead of the forward inclination as is normal. The costal border is inevitably narrower than in the normal type, the angle being usually under 45° while at times in adult life it is so slight as to be hard to insert the fingers between the costal cartilages of the two sides. Because of this position of the ribs, the upper abdomen is naturally very small and the abdominal viscera must be in a different position from that seen in the normal type. The general shape of the abdominal cavity resembles the normal pear (Forbes, Williams¹⁶), large below and narrow above. (Fig. 17). Because of this the liver is displaced downward and it is usually rotated to the right, so that the right border is frequently below the crest of the ilium. The retro-

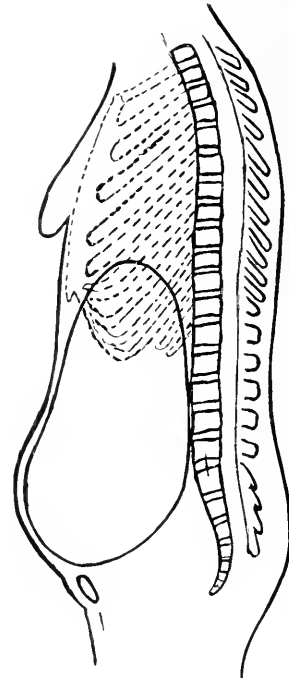


FIG. 17. (Williams.)

peritoneal fat is practically entirely lacking, with the result that the kidneys are usually mobile, the position occupied depending entirely upon the position assumed by the individual at the time of examination. Because of the absence of the retroperitoneal fat, the sympathetic ganglia and the large blood vessels must lie unprotected upon the anterior part of the spine, and it is not improbable that the changing positions of the organs, in the changing positions of the body, must at times lead to irritation or harmful pressure of these ganglia or vessels. The same thing is probably true of the adrenals, which being unprotected by fat pads, must be pressed upon and irritated more than is normal, this mechanical disturbance possibly explaining the peculiarity of the structure of the adrenal in this type of anatomy, which has been described by Dr. Bryant.

In this type of anatomy, since the ribs are lowered in front, the diaphragm must be lower than is normal, and this is increased by the drag of the loosely attached stomach, liver and colon. Because of this, the movement of the diaphragm in respiration must be less than normal, with, at times, practically no movement whatever showing in the Roentgenological study. The effect of this upon the breathing, as well as upon the circulation, especially in the large abdominal veins, to say nothing of the function of the other organs, must be very apparent.

The constant position assumed by this type is with the body inclined backward from the low lumbar region, making a sharper curve in the low spine than is normal, the spine above this point being relatively straight to the upper dorsal region, from which point it bends sharply forward to the midcervical region, where it bends backward again to make the upright position of the head possible. (Figs. 4 and 5). The general impression created by such a position when the individual is dressed is often that of being quite erect. In this position with the ribs low in front there is imperfect support for the shoulders, so that they are drooped forward (Figs. 4, 5 and 18), the scapulae being rotated outward at the top, so that their long axis is much more oblique than normal. In this position the upper part of the scapulae does not rest against the ribs, and since the position exists in childhood when the bones are soft, the unsupported upper part usually is flexed forward, this flexed portion rubbing over the ribs when the shoulders are extended and gives rise to the sensation of crepitation so commonly felt. This irritation if continued naturally causes the pain so frequently referred to this region. With this general posture there are two regions of the spine, the low lumbar and the low or midcervical, in which the degree of hyperextension is greater than is normal, and since in hyperextension the posterior portions of the vertebrae, must be brought closer together than is normal, and since the foramina through which the nerve



FIG. 18.

The slender, congenital viscerotonic or carnivorous type, showing the forward position of the shoulder, with marked rotation of the scapula. In this position the head of the humerus is lowered and rotated inward so that it rests against the second rib, and the possibilities of crowding the vessels of the arm or the nerves of the arm leading to the circulatory disturbances, neuritis, or neuralgias of the arm, are evident.

roots pass are posterior to the point of motion, it is obvious that in this position the foramina must be narrowed. Since this position is the habitual one with this type it is not impossible that some of the little understood symptoms referred to the arms and legs (the parts naturally supplied with sensation and motor control from these two hyperextended regions) or some of the circulatory disturbances of the spinal cord may be due to this anatomic position.

With this hyperextension of the lumbar region and the backward inclination of the upper body, the longitudinal axis of the abdomen is naturally moved backward at the top, but at the same time the pelvis is tipped forward and downward (Figs. 4 and 5), so that its longitudinal axis is moved forward at the top (Fig. 19). The result of this is that the hips stick out at the back more than is normal and the angle formed by the intersection of the two axes, pelvis and abdomen, is less than is normal. In this position the pelvis has its forward inclination changed so that it at times is from 30° to 40° away from the so-called normal position. Naturally in this position the upper part of the sacrum, upon which the spine rests, is moved forward and downward and the weight of the body constantly tends to increase this forward position with resulting abnormal strain to the sacro-iliac joints. This being the case, it is not surprising that it is in this type of anatomy that



FIG. 19.

Spine and pelvis, with left ilium removed, of slender or carnivorous type, showing the marked forward inclination of sacrum. The weight of body must be thrown upon the front of the sacrum, and naturally leads to sacro-iliac strain or displacement.

the strains and displacements of the sacro-iliac joints are most commonly seen.

With this general peculiarity of poise, the weight is naturally thrown upon the feet wrongly, so that the usual high arched foot is markedly pronated and the knees are sprung, usually with some knock knee.

In considering the mechanics of the viscera, naturally the same conditions as to position or mode of use of the body apply as were indicated with the normal human type. The special thing to be borne in mind in this slender type is that all the disturbances of poise are more easily harmful than would be true with the normal human or the more stockily built types. Particularly is it desirable that the positions assumed at night should be considered carefully. The absence of the posterior abdominal fat pads which fill up so much of the lateral spinal spaces naturally allows the loosely attached organs to drag backward much more than is possible in the normal type. This, together with the lack of protection of the ganglia and the blood vessels upon the front of the spine makes mechanical pressure more easily possible than occurs in the normal. It is not improbable that it is this drag or pressure upon these structures during the periods of complete relaxation in sleep that explains the common subnormal temperature, with the weak pulse, the low blood pressure, and the general lack of vitality which is usually present with this type of individual in the morning. For this reason it is particularly desirable that this type of individual should sleep either face downward or upon the side, so that the drag of the organs tends to pull away from the spine rather than to press

backward upon the spine, as would be inevitable if the back position were assumed. The same possibility of backward pressure upon the ganglia or vessels is to be carefully borne in mind at times of operation upon this type, and the back position after operation be maintained as little as possible unless there is some support planned for the low back and loins.

With this type it should be remembered that good poise is possible (Fig. 20). The same child



FIG. 20.

The same case as Fig. 7, showing the possibility of the erect posture, but showing the marked hollow under the ribs as the result of the low position of the viscera.

as Fig. 7), but that it requires greater effort on the part of the individual and greater patience on the part of the helpers than would be required by the normal.

The Broad-Backed, Herbivorous Type.

With this type of anatomy the harmful disturbances of poise as a rule develop much later in life than with the slender type, because the shape of the spine and the general structure of the body withstand strain much longer than the more lightly built creature. In childhood the general posture is with the body erect and in good poise, not unlike that assumed or considered desirable in the normal type.

With this heavy type the disturbances of posture come about chiefly because of the abnormally large and heavy abdominal viscera. This leads to the backward inclination of the body as the weight of the abdomen increases, but since the formation of the low lumbar spine, with this type, does not allow of backward bending, the

inclination takes place either from the hips or at the dorso-lumbar juncture (Fig. 9). The strain produced upon the low back as the result of the posture may lead to marked sensitiveness at the lumbo-sacral juncture, due either to the crowding of the transverse processes against the top of the sacrum with the irritation of the bursae which so commonly lie between, or to the irritation of the articulations formed by the articular processes, or by the crowding together of the spinous processes with the pinching of the intraspinal ligament. Many of the cases of lumbago are undoubtedly to be explained by such strain.

In this type of anatomy the inclination of the pelvis is never forward more than is normal, but is apt to be thrown backward at the top since the pelvis moves with the low spine, and since the backward inclination usually takes place at the hip joints instead of in the lumbar spine. With such a backward tendency if one of the transverse processes is larger than the other, or if the lumbo sacral transverse articulation exists upon one side, or is more marked upon one side than the other, or if the articular processes are peculiar in shape, so that one is crescentic while the other is broad, it is obvious that with the backward inclination, the body is thrown to the side, with at times a marked lateral deformity. It is in this type that the so-called sciatic scoliosis is so often seen (Fig. 21).



FIG. 21.

The broad backed, herbivorous type with the lumbo sacral transverse joint upon the left side, with strain and irritation of this joint, resulting in marked list of the body, with much pain in the left leg, and partial paralysis of the anterior thigh muscles, the so-called sciatic scoliosis.

The symptoms which would naturally result from this would be pain, not in the sacro-iliac joints as in the other type, but at the lumbo sacral juncture, and especially over the lumbo sacral transverse regions. The referred pain will be along the anterior crural nerve or the distribution of the nerves coming from the lumbo-sacral cord, that naturally being the nerve most commonly irritated as it passes under the transverse processes of the fifth lumbar vertebra.

With this type of anatomy the sternum is always carried high so that the chest is more rounded than in the normal human type and the diaphragm is held high, largely because of the bulky viscera which occupy the upper part of the abdomen. As years go on the heavy organs naturally lead to stretching of the abdominal wall so that the viscera occupy a lower level than is normal, but the degree of sag in this type is markedly less than is seen in the slender type with the loosely attached viscera. It should be remembered, however, that the degree of displacement is not that which determines the severity of the symptoms, and that at times the sag of an inch of an organ may produce more serious difficulty than the sag of several inches.

As the organs sag downward, the ribs, while lowered somewhat, are naturally flared at the bottom because of the high attachment of the organs and the fact that the amount of downward displacement that is possible with them is relatively slight. The antero-posterior diameter of the upper abdomen in this type is relatively but little changed by the drooped position over that which would exist when the body is fully erect. On the other hand, in the slender type the antero-posterior diameter of the upper abdomen is much less when the body is drooped than when fully erect. The costal border in this heavy type of anatomy is always broad and usually is more than 90° rather than less.

With the heavy type the positions assumed when sitting are as a rule much less serious than with the slender type, since the structure of the body as a whole makes the droop much less marked, and since in the sitting position the lower abdomen is partly supported on the upper thigh and the downward drag of the organs thereby somewhat lessened.

The position at night is naturally of importance, and with this type the position upon the face would cause so much backward pressure upon the viscera and structures at the back of the abdomen that probably harm would result. The back or the side position is naturally the best. Since the lumbo sacral region is the part most commonly strained in this type of anatomy, the back ache in this type or the referred leg pains are usually relieved by recumbency, the reverse of this being true with the slender type, in which with the sacral strain the day time is the time of greatest ease, the night being the time of greatest discomfort.

Deductions.

If that which is here stated is correct, and verification of the statements should not be difficult, it means, in the first place, that the teaching and study of anatomy should not only have to do with the normal type, but that the other types should be given similar recognition. The need of this broader anatomic training must be obvious when one appreciates how rarely the physician is consulted by the person having the anatomy as it is commonly taught.

It means, also, that in the study of physiology the elements which are peculiar to each type should be investigated and appreciated. When the elements which are easy of study, such as the gastric secretions, the blood pressure, pulse rate, temperature, etc., vary so markedly with the different types there must be similar and perhaps more important variations in the other features which are part of our physiology. To study all individuals from the same point of view must lead to much confusion and explains in part the different reports which are made of seemingly similar investigation. With the types so widely different it is not difficult to believe that there is wide variation in the function of the different parts. The physiology as a whole should be studied with this in mind. The temperature, blood pressure, and other elements of this sort should be observed, but also the problems, such as the mechanics and peristalsis of the stomach and bowel, with the time involved in the passage of food from one part to the other. These must vary, and each type should be studied by itself, since it is obvious that study of one type would be of very little assistance in interpreting the symptoms or functions of another. This must be particularly true of the chemical observations and it must be obvious that in beings having so much the makeup of creatures so widely different as the carnivora and the herbivora there is probably enough of difference in the body metabolism as to make such studies of uncertain value unless the anatomic type of the creature studied is stated.

It means that probably in this difference in types is to be found the explanation of the varying effects of the same diet upon groups of individuals. That one becomes fat while the other remains thin, or that one suffers distress while the other thrives upon the same food must be due to something other than the food. The fact with which even the laity is familiar, that meat in gout is harmful becomes a matter of interest when it is realized that the herbivorous type is the one that is subject to gout. Also the fact that a few years ago so many of the nervous invalids were helped by the diet of chopped red meat and hot water of Dr. Salisbury becomes interesting, since this type of patient is almost always of the carnivorous type. It apparently means that while all human beings have elements within them which make possible the digestion of the different kinds of

food, some are digested with greater ease than others, and that this fact at times is of the greatest importance in the interpretation of symptoms and their treatment.

It means in the medical and surgical treatment of our patients that the symptoms should be interpreted in relation to that which is normal for the special type of anatomy represented in our patient, and that the mechanical conditions present in such a type should be carefully studied. A blood pressure, for instance, that would be normal for one type might be dangerously high or dangerously low for the other type. A disturbance of circulation in the legs, the varicose veins, or in the lower abdominal structures, varicocele, etc., should be thought of not as a local condition, but investigation at once started to see what is pressing upon or interfering with the veins above. Correction of sagging organs, or the removal of some pelvic tumor may wholly relieve the mechanical interference with the veins with entire relief to the conditions below. The treatment of the vein itself, since it is treating a symptom only, must necessarily be unsatisfactory.

In thoracic conditions, it means that not only should the disease of the organ itself be considered, but the conditions under which the special organ works be also considered. In the slender type, since the chest is used at full expiration and since the movements of the diaphragm are also restricted, the lungs should not be expected to become strong or to work rightly until the conditions upon which the proper action of the lungs depends are made possible. With the tuberculous patient, which almost always is of this type, it should be made a part of our work to see that the body is so used and supported that the chest is raised, and the drag upon the diaphragm removed, so that the normal rhythm of respiration is possible, as much as to see that the patient is given fresh air. The air cannot get into the lungs unless these mechanical elements are recognized. The same is true of the heart action, if the chest is low, and the diaphragm depressed so that the suspensory ligament, which is the pericardium, is stretched. Not only must the heart labor at a disadvantage from its immediate environment, but the interference with the diaphragmatic action must be of much importance, and for only one illustration, the unloading of the abdominal veins, which is dependent so much upon the movement of the diaphragm, must be disturbed. When the mechanics of the heart action is considered one is not surprised to find such work as the article by M. Herz¹⁰ upon "Interference with the Heart Action by Stooeping," reported.

In the abdominal conditions it means that they should be given proper anatomic and mechanistic consideration. It may be that the individual is simply receiving food that is designed for an entirely different type or it may be that the organ or organs are so mechanically

out of adjustment that the normal function is impossible. The imperfect action of the liver or the formation of gall stones may be due to mechanical interference with the structures upon which the function depends. The fact that gall stones so commonly are found in the heavy type, while the cystic bladder is so commonly seen in the slender type, probably means something which has both a physiologic and a mechanistic significance. The inability of the stomach to empty itself, or the variations in the character of its secretions, may be due to the position of the organ itself or to interference with the vessels or nerves supplying it. The function of the bowel, both large and small, may be good or ill in proportion as its structure is normal or its position is correct. Kinks may occur, but it should be remembered that while some are serious and require surgical interference, that many times if the mechanistic features are appreciated, that the kink can easily be released, while if surgery is employed, the special kink may be removed but the structural formation is such that other kinks are possible, with a greater probability of their developing because of the postoperative adhesions which are sure to be added to the structural peculiarities. The ulcers of the stomach or duodenum may be due to improper pressure, as has been fully described by Codman.¹¹

It means in the part of the study in which the x-ray is used, that the difference in the position of the viscera that should be present when the body is recumbent upon the side or back, as well as that which should exist when the body is erect, should be fully understood.

It means that with the disturbances of the kidneys, that those which are mobile should be expected as a part of the anatomy of the slender type, and that attempted suture of such organs can hardly be successful unless there is much postural training, since all of the mechanics tend to displace them. In the so-called diseases of the kidneys it should be remembered that albumen and the other abnormal elements are only symptoms of a condition, and may be due to improper demand put upon them by the wrong food, or may be due to some purely mechanical condition. When the anatomic features are considered as well as all the mechanistic features one is not surprised to find such work as Scholder and Weith¹² carried on at Lausanne, showing that in 1254 school children in over 20% they were able to obtain albuminuria by putting the children in certain definite postures. Similar work by Fisehl and E. Popper¹³ upon albuminuria is of additional suggestiveness.

With the presence of sugar in the urine it is not impossible that as well as improper food the pressure of the mobile, heavy organs upon the pancreas, or its blood vessels, may be distinctly causative of the symptom. Certain it is that when one has seen cases in which after

most careful dieting the sugar has persisted and then after supporting the organs properly the sugar has wholly disappeared, it is hard to believe that the mechanistic elements are not of some importance. It should be remembered that the diabetic is almost always the heavy type and that sugar is rarely present in the slender type, except occasionally in childhood, and then only in an evanescent manner. In this heavy type the organs are heavy and are placed in the upper abdomen, while in the slender type they are much lower. One cannot help wondering if the heavy organs by sagging may not crowd the pancreas or the sympathetic ganglia of that region with etiological importance. The supports or postures which are used should be planned with reference to this.

It means in considering the blood diseases, especially the profound anemias, which cannot be explained in other ways, that the position of the spleen or the effect which other organs may have upon its function should be considered. The ease with which the blood supply of this organ could be shut off or interfered with as the other organs move about, must be apparent, while the possibility of the spleen itself being displaced or its vessels twisted, must be equally evident as we come more and more to understand the mobility of the various viscera. The fact that the blood recovery has taken place rapidly after mechanical treatment has been applied, after the previous continuance of the symptoms in spite of the ordinary medical measures, makes it seem probable that to make it possible for the organ to work, is perhaps as important a part of treatment as any other.

It means that with the disturbances of the other abdominal organs that both the anatomic and the mechanistic features should be considered; that the stomach and liver cannot work rightly if the ribs are contracted and narrowed so that there is practically no subdiaphragmatic space; that the pelvic organs cannot work rightly and must be congested if the loose abdominal organs are crowded into the lower abdomen and pelvis.

It means that in studying the mental diseases or the nervous disorders, since with the former the acute conditions are usually seen in the slender or carnivorous type, while the chronic or degenerative conditions are usually seen in the heavy type, in which the arteriosclerotic changes are common, and since also the functional nervous conditions are usually seen in the slender type, that probably the anatomic form is of distinct importance in the understanding of such conditions. It is not improbable that the acquired characteristics, with the mechanical disturbance of the physiology which is to be expected under such conditions, may be of distinct etiological importance.

With epilepsy, the recent literature so strongly suggests that many of the cases are due to gastro-intestinal derangements that it is not un-

reasonable to wonder if by studying the anatomic condition fully, we may not find suggestions that will be helpful in our treatment. From the mechanistic point of view when occasionally one sees the convulsions stop instantly by the mere change of position to that in which there would be less pressure of the viscera upon the ganglia and vessels in the posterior part of the upper abdomen, it makes one question if these mechanistic elements are not part of the complex condition that shows itself in the convulsion.

It means that in studying the disturbances of the internal glands that since the hyper-thyroid conditions are usually seen in the slender type, while the hypo-thyroid conditions so commonly occur in the heavy type, it is possible that in the better understanding of the physiology of the whole body with such an anatomic basis, our treatment of these conditions may be more satisfactory.

It means that in studying such local conditions as the disturbances of the eye, it should be appreciated that the circulation in the eye may be so materially changed by postures which interfere with the blood flow to the head that the shape of the eye is changed, the near sighted eye resulting (Howe¹⁴). In such diseases as cataract, since these commonly develop in the heavy or herbivorous type, as is true of the hypertrophic arthritis, perhaps there is something else to be done other than wait for suitable time for operation. With such understanding of the anatomic types and their physiologic potentials, one is encouraged in such hope by work such as is reported by Connor.¹⁵

With some of the other inflammatory conditions of the eye it is not improbable that the function of the ophthalmologist will extend much farther than the application of the local remedies, but that a kink in the bowel leading to an eye infection or the interference with the circulation in the eye as a result of some local mechanical feature may be the real cause of the trouble and that his greatest function is seeing that these conditions are corrected.

It means, in obstetrical work, that the different types have very different potentials. The slender type of woman is as a rule in better health than usual during pregnancy, after passing the first month or two, undoubtedly in part due to the support which the abdominal organs receive from the enlarging uterus. The labor also is usually easy with this type, as one would expect from the small amount of pelvic fat, the slender or small fibred pelvic muscles, and the slender pelvis with the loose pelvic joints. In the last month of pregnancy the sacral pain with frequent sciatica is easily understood by the form of the pelvic joints, and the quick relief from the pelvic joint strapping is not surprising. The possibility of increasing the diameters of the pelvis in this type and thereby assisting at the time of labor by simply manipu-

lating the sacrum should be realized, as well as the greater need of pelvic support, by swathe or strapping while the involution is going on. Also with this type, to maintain the higher position of the abdominal organs, the upright position should not be assumed until the abdominal wall has regained its proper tone and suitable corsets, to give low abdominal support, are fitted. It should be appreciated that conception with this type occurs easily and large families are common. With the heavy type childbearing is a more difficult matter, conception occurs less frequently, and the pregnancy is usually a time of much discomfort, with distressing back ache due partly to the relaxing of the broadly formed sacro-iliac joints and partly to the strain of the broadly formed lumbo-sacral joint, due to the changing poise. The labor is usually difficult, partly because of the general lack of flexibility of the pelvic girdle and the low back. It is with this type that back ache with referred leg pains often last for long after confinement because of the chronic joint strain.

With the normal human type the obstetrical condition is midway between these two types. It is neither as easy as with the slender nor as hard as with the heavy type.

It means that with the orthopedic conditions not only should the special joint or part be protected, but the type of the being as a whole should be studied and the function of the different parts assisted as much as possible. In the fitting of apparatus this is particularly important, and anything that interferes materially with the visceral function or with the proper development of the body as a whole should be most carefully avoided. This should be especially considered in some of the newer methods for the treatment of lateral curvature.

It means that, in the treatment of the common weak foot conditions, cure can hardly be expected unless the elements of faulty mechanics which have led to the foot strain are corrected. Of these, among the seemingly remote causes of strain, it should be remembered that the abnormal drag of the abdominal viscera will necessarily throw the body out of poise, so that the balance of the feet will be disturbed. It means that in the treatment of the common strains of the sacro-iliac joints that cure is not to be expected unless the abnormal forward inclination of the pelvis which has led to these strains is overcome. It means that in the treatment of the chronic joint diseases that the treatment of the local condition is only part of the problem. The joint symptoms are usually due to some systemic disturbance. To find the primal cause of the difficulty and see that that is corrected is naturally the most important function of the orthopedist.

It means, and this is apparently the most sobering phase of the subject, that as the result of the splendid work of our profession in preventive medicine, the slender type, which for-

merly because of its low resistance added so much to the mortality of infancy and childhood, is now being saved. It means also that with this type growth without proper guidance inevitably produces a still weaker physique, with drooped figure, narrow chest, etc., etc. These acquired characteristics added to the congenital form accentuate the congenital elements to such an extent that they are much more sure of being present in the following generation, and it becomes a mere matter of biology to see that such elements which represent physical instability will become more and more marked in the subsequent generations. This together with the fact that the slender type is the most prolific, makes evident that the stock from which the race is recruited will become steadily less strong. That this is actually taking place one has only to study any considerable group of school children of the present time to see how commonly the slender type is found. That this was not formerly the case is suggested, at least, by the study of the engravings of groups of individuals, such as were so commonly made from 50 to 100 years ago, in which the broad or round faced type is almost the only one shown. This is, of course, equally true at the present time in those countries in which modern medicine has exerted but little influence, and consequently the infant or child mortality is extremely high. The similarity in the form of the Oriental is apparently to be explained largely by this, as is true also of the form of the pure African. The slender type is not often seen among these races.

Since with the work of our profession and the general development of our civilization, the structure of the human family is being modified, it certainly behooves us to see that the modification is beneficial and not harmful. For this reason the great opportunity for our profession consists in not only saving the lives of those who are physically delicate, but in seeing that they are developed into stronger and more healthy individuals.

Similarly this is the great opportunity and responsibility for the educator. The slender child, if guided and trained rightly, becomes the agile, quick moving, quick thinking type of individual. To obtain such a development means most constant perseverance with the education and training of such a child, and this training should begin in the lowest grades of our school system, insistence being put always upon poise with its resulting efficiency. If the proper exercises are started in the lower grades and are increased in vigor and complexity as the child progresses, the children can be brought up to adult life with very different physique from that which is so commonly seen at the present day. One of the most serious phases of the educational aspect of the problem is that since this slender type is sensitively and nervously organized, with distinct nervous instability, intellec-

tual training must necessarily increase this instability, unless with the intellectual training the training of the body is insisted upon so that the proper physical support is given for the mental development. If education is approached in this manner it is a blessing, but if the intellectual aspect alone is held it must, in so far as this slender type is concerned, be harmful both to the individual and to the race.

One would certainly be a pessimist of the most profound type if he felt that the splendid work of our profession along preventive medical lines was a curse to the race by preserving the lives of the slender or delicate physical type, which Nature, in keeping with the law of the survival of the fittest, would have thrown off, or that the splendid work of the school and college is also harmful to the race by accentuating qualities of weakness; but such must be the fact, unless something else is added to the mere saving of the lives and to the common system of education as it exists today. If the physician and the teacher recognize these facts and apply the natural principles for the proper development of these individuals, the result must be inevitable—a stronger and finer race.

What higher incentive can there be for work than that which benefits the individual and at the same time by helping him gradually removes the weaker elements, which if perpetuated would surely lower the vitality of the race as a whole? The free will of choice with which man is endowed and upon which his moral development depends seems to find a similar responsibility in the development of a better and better creature along physical lines, and this development, as is true with the other, follows simple and understood laws. What greater incentive for one's best endeavor could a man desire than to become conscious of the greatness of this opportunity? In the moral choice man is given great responsibility and in the physical the responsibility is none the less great, unless the development of the human family is to be governed by the same law of survival of the fittest and natural selection which has governed the development of the lower forms of life. That man has for his future something better than these laws would make possible, everyone must feel who has thought at all beyond the needs of the day, and in the hope of stimulating thought and activities along these lines this contribution is presented.

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Osler truly says, "collects a heavy toll of the unborn." The 113 given deaths represent his second group, and of these, 78 were under one year of age and succumbed probably to the direct lesions of the disease. "But the worm that never dieth and the fire that is never quenched express in simile," as he says, "the only too frequent history of syphilitic infection"—well chosen words we must admit, when we consider the third great group.

This includes the 231 who died of general paralysis of the insane; the 87 who died of tabes; one-half at least of the 372 labeled paralysis without specified cause; nearly all of the 56 recorded as softening of the brain; one-tenth at least of the 3496 who died of cerebral hemorrhage, nearly 500 of whom were between the ages of twenty and fifty; one-tenth perhaps of those 1979 under the heading of diseases of the arteries (atheroma, aneurysm, etc.), not to mention some of the 4610 organic diseases of the heart, a few of the 388 cirrhoses and other diseases of the liver, and a few of the 478 suicides. In round numbers, if we include still-births, we might place its mortality at 3000, or about one in every eighteen deaths, making its record of fatality fall behind only tuberculosis, pneumonia and cancer. Call this excessive if you will, and for the sake of conservatism divide the mortality by two. Yet it still remains high enough to attract the attention of the doubter.

My purpose in presenting these figures is simply to forestall the criticism that one interested in this disease can see nothing else, and also to give some food for thought to those who rather boastfully say that they never come across a case of syphilis. But my special topic tonight is a consideration of this disease in its relation to lung disease, a subject that has not received at the hands of American writers the attention commensurate with its importance. Whether or not syphilis of the lung is as infrequent as some believe is a debatable question. There are those who say that it is not of such rare occurrence and that it is often overlooked because it is difficult to distinguish between this lesion of the lung and pulmonary tuberculosis, not only at the bedside, but in the pathological laboratory. Stengel³ says that there is no disease in which it is more necessary to carefully weigh the pathological findings with the clinical history before giving an opinion. The finding of the tubercle bacilli is the only absolutely certain point of difference and even this does not preclude the possibility of associated syphilis. Pulmonary tuberculosis is so common and syphilis thought to be so rare that it is not at all improbable that some of these cases slip by with a diagnosis of tuberculosis. Moreover, many cases of supposed phthisis give such a typical history and show such characteristic signs of the disease that it does not seem necessary to examine the sputum. Even if the bacilli are not found after several examinations, no change in the diagnosis is made.

Original Articles.

SYPHILIS AND LUNG DISEASE.*

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IN the Schorstein Lecture¹ Osler, with characteristic skill, paints a picture of the harvest reaped by syphilis, and sets down indisputably in cold figures the high position it occupies in the "hierarchy of the infections." For the year 1907, he places its mortality in England and Wales at between six and seven thousand, or about one in eighty deaths, and this does not take into consideration the unestimated and very large number of still births. In short, he reckons syphilis as sixth in the list of diseases due to specific germs, although in the registrar-general's report for 1907, only 1658 deaths are charged to the spirochete.

Following Osler's line of reasoning, let us turn to the vital statistics of Massachusetts for the year 1912 and see if we can get some idea of the prevalence of syphilis in this Commonwealth. If we expect the figures to show it as a killing disease, we shall be disappointed, for the spirochete is held responsible for only 113 deaths.² Remembering, however, that syphilis can kill in three ways and at three different periods, we can readily see that these figures by no means tell the tale. Of the 3188 still births, half at least may be credited to the spirochete, which, as

* Read before the Charlestown Medical Society, Feb. 15, 1915.

The same line of argument is used in the autopsy room. The condition is so much more likely to be tubercular than luetic that it is almost always placed in the former class unless syphilitic lesions of a pronounced character are found in other organs.⁴

In reviewing the literature before the discovery of the tubercle bacillus, we find syphilitic phthisis mentioned by many authors. Morgagni⁵ makes note of a phthisis, a *lue venerea*, and of its cure by anti-syphilitic treatment. Virchow⁶ insisted that contributions on the subject by Graves, Stokes, Laennec and Yvaren were of little worth since they lacked anatomical confirmation. In 1862, Virchow himself had a case which clinically and later at autopsy showed lung syphilis. The costal pleura was thickly seeded with yellowish miliary and larger flattened areas of thickening, most of which were grouped about a projecting flattened scar-like area with radiating margins. In the lungs were multiple nodules, the largest from the size of a pea to the size of a walnut, with softened centres often forming bronchiectatic cavities. These pleural and pulmonary lesions in association with typical constitutional syphilis, served to recall to Virchow a few cases of similar lesions in congenitally syphilitic infants. In these cases nodules were found in the pleura and in the lung substance around the bronchi. The so-called white hepatization of the still-born first described by Virchow in 1847, was shown by Hecker in 1854 to be due to syphilis.

In acquired syphilis there is a second or interstitial form as distinguished from the one with multiple gummata described above. In this form, met with post mortem in old syphilitic subjects, the fibrous tissue is seen most commonly and abundantly at the hilus of the lung, whence it may extend as dense bands into the interior along the air tubes and blood vessels. It may be quite general and lead to extensive pulmonary fibrosis and shrinkage, or it may occur in scattered areas. The disease is usually unilateral and there are commonly also dense, firm adhesions in the pleural cavity. This interstitial hyperplasia displays no characteristics that serve to distinguish it from fibrosis due to tuberculosis, unless it be its tendency to be confined to but one lung, and to occupy the middle parts of the organ. It is this difficulty probably in distinguishing between the two that makes our autopsy records show so few cases of specific lung disease. This will, perhaps, explain why Osler observed only twelve cases in twenty-eight hundred autopsies at Johns Hopkins, and why not a single case was observed in three thousand autopsies at the Massachusetts General Hospital.

It is to clinical evidence then that we must turn, for since syphilis of the lung is a curable condition, it is not strange that we find so little evidence of it at autopsy. Fournier lectured on it in 1876, and in 1877 Porter read the first paper on the subject in this country. Satter-

waithe, in 1891, in the BOSTON MEDICAL AND SURGICAL JOURNAL, reported some cases and expressed the opinion that lung syphilis was greatly underestimated and even unknown to many syphilographers. In 1891⁷ also, Councilman reported two cases of lung syphilis demonstrated at autopsy in which the diagnosis had not been definitely made before death. In this article, he says that he has found it to be comparatively rare, although he adds that it is difficult to see why this should be so. In England, France, and occasionally in this country many cases of clinical luetic lung disease have been reported. In most instances they were clinically identical with consumption in its various stages, were at first diagnosed and treated as such, but finally, on account of repeated failures to find the bacilli, were recognized and treated as syphilis with happy results. For example, Dr. L. Brown in *Johns Hopkins Bulletin*, April, 1914, reports a number of such cases under the heading of "Some Errors in the Diagnosis of Pulmonary Tuberculosis." Brown of St. Louis reported several cases May, 1914.⁸ Burnham⁹ of Boston reported the case of a woman who was admitted to one of our state sanatoria with the diagnosis of advanced phthisis. After a month or so, she left the sanatorium against advice, was afterwards labeled second and third stage tuberculosis at various clinics, and yet all the while the sputum was negative. Burnham, suspecting her true condition, had the blood examined with a positive result, and under specific treatment her recovery was rapid.

Three years ago I saw a young man twenty-six years of age, with a history of a hard sore about a year previous. He was twenty-five pounds under weight, was pale and had a mouth full of sores. He had a severe cough and marked dyspnea. His story was that he was never able to stand much treatment with mercury, but had progressed fairly well until four months before I saw him, when he developed a hard cough. His appetite became very poor, he began to lose weight, and his stomach could not stand the mercury which he had been taking by mouth. Discouraged, he stopped all treatment and began to drink. Mucous patches appeared in his mouth and around his anus; he had bloody sputum and night sweats. Lung examination showed both tops filled with sibilant râles and a percussion note that was none too good. At the time I thought that I was dealing with a case of phthisis complicated with syphilis and gave a rather discouraging prognosis to his friends. His sputum was not examined, as on the following day I gave him an intravenous injection of salvarsan which caused an immediate change for the better. A month later I hardly knew him, so rapid had been his gain in weight. Not long ago I heard from him from Philadelphia, where he now lives. He feels perfectly well and is still taking specific treatment at intervals. What he was suffering from was probably a

syphilitic tracheo-bronchitis which, had it gone untreated, would, I believe, have soon developed into a rapidly advancing case of pulmonary tuberculosis. It is interesting to note that in this case the patient had an idiosyncrasy to mercury, and the rapidity with which he cleared was a tribute to the efficacy of salvarsan.

Some time ago, in my work as an examiner, I saw a man with a solid left base, evidently an old fibroid condition. He was also rather wheezy with a chronic bronchitis. Although pale, he looked fairly well and apparently had not lost any weight. Over his left scapula was a small, suspicious-looking serpiginous lesion. He denied syphilis and was very indignant when I told him that I would have to reject him. Of course I was unable to follow up this case, but I feel that I am not unreasonable when I say that his was probably a clinical case of lung syphilis.

Not long ago I was consulted by a stout, healthy-looking man of fifty, on whom a diagnosis of second stage phthisis had been made. He had a cough, slight loss of weight and a suspicious condition at the tops of both lungs. His cough was one of those irritating ones, out of all proportion to the physical signs. In reply to my routine question about syphilis he promptly replied that he had what he termed "syph" twenty-five years ago, but said that he had taken treatment for five years and supposed that he was cured. I was interested enough to take some blood for a Wassermann test, which proved to be strongly positive. He was given three intravenous injections of neosalvarsan and later put through a course of mercury intramuscularly. Then he was given mixed treatment. After four months it is interesting to note that he still went strongly positive. Clinically the result was all that could be hoped for. His lung condition cleared and he felt better than he ever did before. Here, again, I believe that I was dealing with a case of clinical syphilitic phthisis that might have found its way to a tuberculosis sanatorium.

Osler reports the case of a man of twenty-seven admitted in April, 1902, who for years had cough and bloody expectoration and who died of severe hemoptysis. Bacilli were never found in the sputum. There were extensive caseous gunmata throughout both lungs, with much fibrous thickening, and in the lower lobe of the right lung a cavity three by five centimeters in diameter, on the wall of which a branch of the pulmonary artery was eroded.

These are only a few of a number of cases either clinical or pathological, that might be mentioned. The point that I wish to emphasize is that their occurrence is an established fact that cannot be lightly set aside.

Fully as much neglected as luetic phthisis is a more frequent condition, the association of syphilis as a general disease and pulmonary tuberculosis. Occasionally we read of striking improvement in pulmonary tuberculosis by the intra-

muscular administration of the succinimide of mercury. It seems reasonable to suppose that these are cases of phthisis complicated with syphilis. We hear very little of lues as a predisposing factor in pulmonary tuberculosis. Fowler and Godlee in their book on Diseases of the Lungs (1898) put due emphasis on the fact that syphilis, by lowering the resistance, may predispose to consumption. They state that it has been shown by Hocksinger (1894) that the virus of syphilis and tuberculosis may be jointly transmitted from parent to offspring. They cite his cases of three infants suffering from congenital syphilis and presenting symptoms of lung infiltration in whom the pulmonary disease was found post mortem to be due to tuberculosis and not to syphilis. The bacilli were found in the lungs in all three cases. Fournier remarks, "I have already seen a number of patients become tuberculous in whom syphilis had powerfully exerted its depressing influence." "Again," he says, "from my own personal experience, as well as from what has been said on this subject by the highest authorities, I do not hesitate to inscribe syphilis in the etiological chapter of pulmonary tuberculosis."

Sergent¹¹ of Paris, who has made a special study of the association of these two diseases, which he has embodied in a monograph on the subject, believes that syphilis is a common predisposing cause of tuberculosis, and that it prepares a soil (terrain) favorable to the growth of the tubercle bacilli, and that this special soil is transmissible to the descendants. The active consumptive, he says, receives a mortal blow when he contracts syphilis. With the inactive case the outlook is brighter. When a syphilitic becomes tuberculous, the prognosis varies according as to when he contracts his phthisis. If it is in the tertiary stage it is always inactive or benign. He makes the interesting suggestion that syphilis may be at the bottom of inactive tuberculosis in the form of emphysema. He concludes his study of these associated conditions by stating that he cannot always agree with the old idea that lues and consumption combined constitute the most formidable of diseases. We must consider in each case the soil, the malignity of the diathesis and the response to proper treatment before giving up the case as hopeless.

Guerin¹² of Bordeaux, who has also labored in this particular field, warns us to look always for tuberculosis in the presence of syphilis. Gouget¹³ of Paris reports a case of a woman with cutaneous specific lesions and definite signs in the right lung, with bacilli in the sputum. Under mercury her skin lesions disappeared and the lung process became inactive. Like Sergent, he feels that syphilis is a favorite soil for the development of tuberculosis, and in the case of the consumptive who became syphilitic, he lays down the following rules: If the lung is active the process rapidly advances and death soon intervenes. If it is inactive the-

chances are better. In the case of the luetic who becomes tubercular, he, too, says that if the tuberculosis is acquired in the secondary stage it advances rapidly, and our prognosis should always be grave. In the tertiary stage, the patient is predisposed to a fibrous evolution of his tubercular process, thanks perhaps to his arterial hypertension. The serious cases belong to secondary syphilis and active tuberculosis.

Some observations on this subject by Mr. D'Arcy Power¹⁴ are also interesting. Children and adults with the taint of inherited syphilis often show signs of tubercular joint disease in the form of a gummatous synovitis, which does not improve beyond a certain point under anti-syphilitic remedies. In young adults born of specific parents an attack of pneumonia or other infectious disease may be followed by signs of syphilitic inflammation. The syphilitic lesions thus manifested may become tubercular and the patient die of tuberculosis. Old persons who have acquired syphilis many years previous show a tendency to be attacked by senile tuberculosis.

Enough has been said to show the magnitude and the importance of this subject. It is a question that the tuberculous expert cannot disregard. No great public movement in preventive medicine has fallen into such a rut on the scientific side as the fight against consumption. In a spirit of suggestion, therefore, rather than criticism, I recommend to the leaders in this work a field of investigation that is worthy of a live effort.

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- ¹¹ Sergeant, E.: Syphilis et Tuberculose par, Paris, 1907; Syphilis de l'appareil respiratoire, 1909.
- ¹² Journal de Medecine de Bordeaux, Vol. 37, p. 637, 1907.
- ¹³ Gouget, M.: La Clinique, Paris, 1910, Vol. 5, p. 104.
- ¹⁴ Power, D'Arcy: The Clinical Journal, London, 1911, Vol. 23, pp. 333-336.

RABIES IN CHINA.

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RABIES as a distinct and commonly recognized disease entity, has a history in China running back into the dim annals of the nation's youth. Chinese nosological writings are characteristically indefinite, and because the so-called scientific method is not employed, their conclusions are often peculiarly naive and devoid of reason.

In spite of this fundamental defect, however, the Chinese observation of natural phenomena is often surprisingly accurate and circumstantial even though their deductions therefrom may be far from the fact. Thus in the case of rabies, the absence of the scientific method has prevented their following up the data accepted as fact, the fruit of their own observation.

From remote times rabies in man has been known in China and has been connected with the same disease in dogs. Apparently other animals, domestic or wild, have not been considered subject to the disease, but in dogs it has been described very definitely. It is called the "mad dog disease" or "the serious disease of lower animals." Here, as in other matters, there is undoubtedly a variety of belief in different parts of China, but the data presented may be taken as typical and accurate for Changsha. Strangely enough, no word corresponding to "hydrophobia" is known, nor has any reference been found of observation of aversion to water on the part of rabid dogs or men.

In the time of Chum Tzu, who was a contemporary of Confucius, it is recorded that a mad dog attacked the people of Sung, this being a dynastic name applied at that time to the Chinese Empire. The people were terrified and banded together to kill the dog, but it ran away and made its escape. This shows, so the Chinese say, that the mad dog was as greatly feared at that early time as it is today. Rabies in human beings is considered to be very difficult to cure and often incurable. Men more frequently contract it than women because men more often attack mad dogs and are thus exposed to infection. In killing or attacking a mad dog it is held that care must be exercised because the poison may be transmitted from the dog to a stick by the saliva, and from the stick to man by contact. The same is noted with reference to clothing and it is held by some that a man may become infected merely by having his stick or his clothes bitten by a mad dog. The infectivity of the saliva is clearly recognized. For this reason it is recommended that a certain kind of stick alone be used, a variety of black bamboo. This is semi-traditional but has basis in reason in that such a stick is so smooth and hard that a dog cannot bite it and the saliva is not retained.

The diagnosis of rabies in man or dog is made by the Chinese practitioner on the following points. By striking a brass gong or pan sharply before the suspect, extreme fear is produced and sometimes convulsions. The same follows vigorous fanning with a palm fan. Another diagnostic method in man is to feed some yellow or black beans. If the man finds the taste sweet and pleasant and enjoys the eating, it is an evident sign of madness, but if the taste seems bitter and there is no pleasure in the eating, the poison of madness is not present. Again, madness may be recognized in man by rubbing his chest with a cash. If red streaks appear, it is a

positive sign. The growth of red hair is another sign.

The essential cause of the disease is laid to a disturbed relation of the gases or atmosphere of the body, resulting in a poisoning of the blood. The incubation or latent period of the disease is observed to be quite variable and often delayed. The poison may remain inactive in a man's body for seven days after being bitten or for seven times seven days, or even for one hundred days, before hydrophobia develops. The length of the incubation period depends on the strength and health of the man and the virulence of the poison. Some say that a man with rabies cannot live more than one hundred days, but that if he hears gun-firing, firecrackers or other loud, harsh noises, he may go into convulsions and die in great pain at once. With the development of the disease the patient experiences a severe cutting pain through the heart and is apt to lose consciousness. His strength is greatly increased, and in his fury he rages, tears, bites and howls just as does the mad dog. The urine and stools are supposed to be suppressed, and this is accompanied by severe pain in the penis, anus and around the waist. The victim tears off his clothing, scratches in the earth, bites everything near him, including his own hands, and in a few hours dies. The sufferings are described as fearful.

Various etiological factors are designated to account for madness in dogs. The following have been especially noted:—

1. In the winter venomous snakes and poisonous reptiles hibernate in caves and holes in the ground, for fear of the cold weather. While the surface of the earth is cold there is still warmth underneath. With the coming of spring these reptiles gradually become reanimated and crawl out of their places of concealment, into the air. During their long sleep, poisonous gases and noxious vapors have accumulated in them, and when they first begin to breathe again these are given off at the mouth of the cave or hole. Dogs smell at these holes and inhale the poisonous vapors, which go through the lungs to the brain and cause madness. The disease in the dog is thus located in the brain.

2. Madness is transmitted from one dog to other dogs, by bites, through the medium of infected saliva.

3. It is said that dogs become mad after eating toads from ponds or pools in the spring of the year.

4. Dogs become mad also from licking up the exuding sap from trees and bushes cut off in the spring when the sap is beginning to flow.

5. When, from some such cause as mentioned, dogs get the poison of rabies in their system, the virus may still not be strong enough to cause madness, but the progeny of such a dog may by inheritance suffer from rabies.

6. In the putrefying bodies of dogs dead from rabies there is engendered an infective agent, microbic or vaporous, which may transmit the disease to other dogs smelling the carcass.

7. Mad dogs discharge on the ground as they run, a strong and venomous fluid, which transmits the disease to other dogs smelling it or licking it up.

8. One interesting theory is that from eating too hot food a dog may develop a great internal heat which causes madness. If by any means this internal heat can be alleviated, the disease is cured.

9. There is an ancient tradition in Hunan that rabies in man is due to the virus from the bite of a mad dog. This virus in the course of 21 days in a man or 14 days in a woman, engenders in the stomach a small puppy which rapidly grows, and by its biting, scratching and growling is responsible for the symptoms observed in the victim.

Most of these causes of madness in dogs are only operative in the spring of the year. Therefore it is considered that dogs should receive special care and protection in the spring. Mad dogs are often difficult to recognize, but can usually be recognized by the fact that they hang down their ears, head, and tail, that they have red eyes, run very fast and far, and that they have "hard strong necks." Then, too, as stated above, they are in terror before a sounding brass gong or if fanned with a palm fan. If the poison penetrates to the heart, it will affect the tongue, which hangs out. If it reaches the liver, vision is lost. In the stomach it results in abundant and poisonous saliva. In the lungs it causes loss of voice. In the lower part of the body it makes the tail hang down between the legs. In man rabies is said to cause the growth of red hair, which must be pulled out by the root if a cure is to be effected.

Among the Chinese physicians of the native school many remedies are in vogue, many of them hoary with the use and belief of centuries. One method of treatment is to wash the dog-bite with rice water, then to scarify with a silver prong until all the poisoned blood has escaped, then to apply a wet poultice of chewed almonds, which draws out and neutralizes the poison. Other remedies in good repute are a preparation of ginseng, which is considered an antidote, and a dose made by pulverizing certain small insects, like lice. By some of the native doctors this latter is held to be almost a specific.

One old style Chinese practitioner, after describing the symptoms of rabies in man, stated that not one case in a hundred recovered, even with the ordinary modes of treatment. He then naively remarked, "But if they will take my medicine they will get well immediately." His specific treatment was the following: Immediately after being bitten by a rabid dog the

victim is taken away to a secret room in the interior of a house where wind, noise and bright light are excluded. His entire body is washed with cold tea. The wound is bound up with a chewed almond poultice made with a vegetable juice called 'gin tsai.' This poultice is changed once in seven days. After 49 days a white surface appears on the wound. Then a preparation of wild mint supersedes the almonds. From the first a dose of medicine is given daily for seven days consisting of the following: angelica root, 2 oz.; liquorice, 2 oz.; peppermint, 2 oz.; orange peel, 2 oz.; ginger, 5 oz.; purple bamboo root, 10 oz.; sarsaparilla, 6 oz.; ginseng, 3 oz.; an unidentified plant from Ningpo, related to *atractylis ovata*, 2 oz.; *pinella tuberifera*, 2 oz.; a plant from Szechuen, not classified, 2 oz.; *ligusticum acutilobum* (probably), 1 oz.; root of *rehmannia glutinosa*, 1 oz. This is boiled together and the liquor drunk at one draught.

After the first seven days the bean chewing test is employed and is repeated at intervals of one week. When the test becomes negative a cure is considered established. The old native doctor reports having seen three men bitten by a mad dog and one of them saved by this treatment. After being cured by this method the patient must refrain from pork, fish and wine for one year, and must eat no dog meat or red beans as long as he lives. Otherwise the disease is sure to recur. During the treatment and up to one hundred days after the dog bite, the patient must eat no salty or sour thing. The principle of this treatment is two-fold. First it is supposed to neutralize the poison and draw it from the wound, and second it is supposed to decrease the internal temperature.

Chinese prescriptions are characterized by great bulk, large variety of drugs and unpleasant taste, and its effectiveness is often measured by these standards. The following is a fair sample in general and it illustrates the formula administered in rabies by a Chinese physician of wide repute in Changsha.

Bamboo root, an indefinite quantity.

Raw hypericum, 1 oz.

Ginger root, 3/10 oz.

Liquorice, 3/10 oz.

Angelica root, 3/10 oz.

Root of *platycodon grandiflorum*, 2/10 oz. (Used as a common cough remedy).

Red gentian, 3/10 oz. (a general tonic).

Root similar to ginseng, 3/10 oz.

Rind of *citrus aurantium*, 3/10 oz.

Pachyma cocos, 3/10 oz (a false tuber growing fungus-like on the roots of fir trees. Commonly called "China root").

A red colored root from Szechuen Province, 2/10 oz. (used in liver complaints and as blood purifier).

These are boiled together in a large vessel of water to a thick fluid, and the decoction is to be taken at one dose before it cools.

It is interesting to compare these ideas which have been held for centuries by the Chinese with certain conceptions current until quite recent times in Europe and America. According to Stimson¹ (*Hyg. Lab. Bull.* 65, 1910), the western history of rabies dates back to the time of Aristotle and Democritus in the fourth and fifth centuries B.C. respectively. Celsus in the first century A.D. gave the first detailed description of the disease, which was amplified by Caelius Aurelius and Celsus in the second century. Without much change these early conceptions came down through the middle ages, until the nineteenth century, when inoculation experiments and scientific investigation of rabies culminated in the epochal researches and productions of Pasteur.

A few facts not ordinarily known are yet matters of old observation and record and justify repetition. Short-haired dogs more frequently become rabid than do long-haired dogs, because the saliva is rubbed off on the long hair. Young dogs are susceptible as well as old ones. The saliva of a rabid dog may be virulent before the appearance of symptoms. Fear of water is infrequent in rabid animals. It is not mentioned in Chinese annals. Mad dogs may be playful at first and do not always froth at the mouth or carry the tail between the legs.

Avicenna taught that the cause of rabies consisted of small likenesses of dogs which were passed in the urine of the victim of rabies after having taken cantharides. These were really blood clots. Their passage was supposed to result in cure. Frederick the Great promulgated a decree providing for the removal from dogs' tongues of the so-called "mad worm," later found to be a normal cartilage of the tongue. This was done to prevent the animals from contracting rabies. To diagnose rabies at one time it was the custom to apply the bared breast of a living fowl to the dog-bite. The death of the fowl proved the poison of rabies present. The mad stones, which are said by Stimson to be still used in certain parts of the United States, are quoted by him to consist of tri-calcium phosphate, obtained as calculi from the gastro-intestinal tract of various animals. They are said to adhere to such poisoned wounds as dog or snake bites and to draw out the poison. Evidence of this is to be found in their discoloration when later boiled in milk. Not even yet has the belief in the spontaneous origin of rabies been entirely abandoned, although modern investigation proves conclusively that the disease is essentially an infective process and that each case depends on inoculation with the specific virus.

There is a parallelism between the observations and deductions of the Chinese and of occidental peoples. While the scientific descriptions and conclusions in the west have been far more accurate and detailed than any in China, never

¹The facts noted in regard to the history of rabies in western countries are taken from Stimson's excellent monograph.

whether the subject be scientific, political, or the popular beliefs of the Chinese compare very favorably with those of western races. The Chinese does not use our system of logic and sequence in his reasoning. But the essential point is that he has a system, even though it be radically different from anything known in the west, and to the best of his ability he consistently follows this system in his reasoning, or philosophical. His standard of judgment does not lie in efficiency or results, but in the test of antiquity. To be old is to be good. Whether measured by his own or by the western standard, the native Chinese ideas of rabies suffer little in comparison with the ideas current in the west until a generation ago or less.

TUBERCULOUS INFECTION AS A DISEASE ENTITY.*

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WITH the development of a relatively new art,—the early diagnosis of tuberculosis,—we find ourselves in a place where we must readjust our attitude toward the general tuberculosis problem. While we have quite readily accepted the belief that the majority of persons have a tuberculous infection at one time of life or another, and while we have recognized that a large number of individuals carry a dormant infection from childhood, we have been very slow to appreciate what these facts must mean in our general attitude toward the disease.

The more recent trend of opinion develops several other facts radically altering the tuberculosis problem. With the acceptance of the doctrine that tuberculosis is largely a childhood infection, we have come to believe that the disease is not as infectious to healthy adults as we had once believed. Further, those who have engaged extensively in the clinical study of the disease have come to feel that tuberculous infection manifests itself very frequently in other forms than those formerly recognized as tuberculosis.

It is untenable that an infection as common as this should give but one of two results; on the one hand, a serious and often deadly disease; on the other, no recognizable disease at all. It is more reasonable to assume that there is a broad borderland between health and active tuberculosis,—that tuberculous infection may cause numerous forms of illness, varying all the way from simple "poor health" to actual physical ailment.

* Presented before the Chicago Medical Society on April 28, 1915.

That such is the case is borne out by our newer conception of tuberculous infection as the causal factor in many cases of so-called neurasthenia and in those diagnosed as typhoid fever (especially of the ambulatory type and without rose spots), exophthalmic goitre (with elevated temperature), "nervous dyspepsia," and various digestive disturbances, malaria (without demonstration of the plasmodium), and so on.

Our present ability to diagnose tuberculous infection in the absence of clinical evidence of disease, or with signs and symptoms previously ignored or regarded as insignificant, renders it necessary for us to alter our methods in advising and treating our patients, and compels us to adopt measures more suitable to the "new disease," which this earlier diagnosis has developed.

Formerly, a clinical diagnosis of tuberculosis suggested one of three courses: (a) sanatorium treatment, (b) out-of-door treatment at home, or (c) ambulatory treatment with tuberculin or other medicinal agents. This program, with no alternative, implies that in all cases of demonstrable tuberculous infection we are justified in disrupting the individual's business and social life and in making him an invalid. This is one of the beliefs which, in the light of our present knowledge, is open to serious question.

Some one has suggested that tuberculosis is a disease of nutrition in which the tubercle bacillus is an incidental factor. While we are not quite ready to accept this very sweeping assertion, we must recognize that thousands of persons are carrying inactive tubercle bacilli constantly with them and that their safety depends upon their maintenance of good bodily health. The development of active tuberculosis among previously healthy persons, after debilitating disease or physical or mental strain, and without known exposure to tuberculous infection, is too commonly noted by physicians to require comment.

Hence it is reasonable to assume that the course to be pursued in those cases in which tuberculous infection is demonstrated without diagnosis of tuberculous disease, is that of building up the general health and thereby increasing the bodily resistance.

Such, in fact, is the basis of our present hygienic treatment of tuberculous disease and such is the plan of sanatorium treatment. Out-of-door sleeping, plenty of nourishing food, rest and carefully supervised life, are merely our means of aiding the individual to fight his own battle against the bacilli. Where this method of treatment has gone beyond the limits of rational living,—as in undue hardships or exposure and in forced feeding,—it has failed.

For the patient with any degree of disease activity—which means the patient with clinical tuberculosis,—sanatorium treatment, with its prolonged rest and rigid supervision, must be insisted upon. For the individual whose infection is demonstrated, but found to be wholly

inactive, I am impressed that regulation of life need not be pushed to a point incompatible with ordinarily useful existence.

For example, we find many patients without evidence of disease who give decided reaction to tuberculin administered intracutaneously or subcutaneously.* This patient may complain of weariness. He may have had slight loss of weight or finicky appetite. He has no elevation of temperature and no digestive disturbance. Physical examination may be entirely negative. To the more careful observer it may reveal a retracted apex or some old lesion apparently quite inactive.

This individual doubtless has tuberculous infection. To conclude that he is a consumptive and likely to prompt breakdown is the height of folly. To entirely disrupt his life and relegate him to a sanatorium is unjustifiable. He does require the readjustment of his methods of life, however, and in this his physician should be his constant guide and advisor. He must not be branded as "tuberculous," with all of the present blighting significance of that term.

The French have classified tuberculosis in four groups: (1) That which is never recognized or suspected,—in which the patient never knows that he is in any sense unwell. (2) That which is cured by a vacation without recognition of its true nature. (3) The tuberculosis which we now recognize clinically and which may be cured by our present means. (4) The massive, acute tuberculosis in which all treatment is futile. And it must be recognized that most of our cases come in the first two groups: that they are not recognized during life as tuberculosis.

There are scores of persons who come to the physician who are found to have tuberculous infection and who, on careful examination, are found to have slight evidence of physical disturbance or ill health, who should be regarded as tuberculous in a modified sense,—“pre-tuberculous,” perhaps,—who should begin their treatment with a sane vacation and who should complete it by intelligent supervision while they pursue their normal lives.

As to whether or not tuberculin is indicated in these cases is a matter for the decision of physicians who are experienced in its use. Certainly tuberculin should be given rarely if at all by the man whose many and varied duties in general practice prevent his becoming thoroughly conversant with this valuable but dangerous agent.

Whatever the method of treatment, the recognition of “tuberculous infection” as a disease condition meriting curative effort on the part of the physician, will not only do more than any other factor in checking the shocking morbidity and mortality of this disease; but it will restore to health thousands of those now suffering from

vague and indefinite disease and will serve to decrease the countless legions of those who now constitute the army of “poor health.”

It is hardly necessary to add that the success of this line of action will depend, to a large extent, upon the skill of the physician as a general diagnostician. Even though the patient may have an unquestioned tuberculous infection, it is not rational to attribute his vague ill health to this cause alone unless we have eliminated or carefully weighed all other conditions to which the ill health may be wholly or partly attributable. But, in my opinion, after all of the other causes have been disposed of, there will be found scores of persons in whom a partly latent tuberculosis is the only demonstrable cause of physical deficiency.

It is not necessary to enumerate the groups of persons in which these cases will be found. Neurologists already recognize the importance of closed tuberculous lesions as causal factors in nervous disorders. Thousands of persons, after prolonged stomach and intestinal disorders, arrive at the final conclusion of their tuberculous condition; other thousands doubtless never reach this definite conclusion. The waiting rooms of laryngologists and rhinologists will offer a fertile field in our search for subjects. And yet the greater number will probably come from the ranks of those in “poor health,”—the never-sick-never-wells,—those who are forever physically inefficient and below par,—those who are “naturally thin” with poor digestions, poor appetites, unstrung nerves and feeble endurance. If our applicants for “spring tonics,” and consumers of patent medicines were subjected to competent examination, the results would be striking. * * *

Another point which, in my opinion, will be an exceedingly important one during the next few years, is the relationship of tuberculous infection to life insurance risk. In the past, insurance companies have rejected those who have family history showing tuberculosis and, even to-day, they are viewing the disease with the utmost suspicion. There are few companies, if any, which would accept an applicant who stated frankly that he had a tuberculous infection, and yet these same companies are annually accepting not only those who have infection, but those who have demonstrable tuberculous disease.

This is due to the fact, of course, that tuberculosis, tardily diagnosed, is and always has been and always will be an extremely deadly disease and, further, that no company is requiring as careful scrutiny on the part of its examiners as would be required to detect this very common disease in its incipency.

The interesting question arises, however, as to what attitude insurance companies can take when their examiners perfect themselves in diagnosis and begin to report scores of otherwise healthy applicants who have unquestioned, but presumably inactive, tuberculous infections. If

* It seems hardly necessary to state that the von Pirquet test is absolutely useless in the diagnosis of tuberculous infection in adults.

they assume their present attitude toward the disease, the companies having the most thorough and competent examiners will have rejections which will hopelessly discourage their agents and insurance selling forces.

I do not mean to say that those applicants now diagnosed as tuberculous should be accepted as risks. On the contrary, the number of deaths from tuberculosis among recently insured persons is inexcusably large. It unquestionably indicates that active tuberculosis is frequently overlooked by examiners.

At the present time, however, early diagnosis of tuberculosis is developing rapidly. Not only are certain individuals who devote themselves to the subject, acquiring a high degree of proficiency; but the better class of physicians are appreciating the former neglect of this important branch of their work and are schooling themselves accordingly. Hence, it will not be long before insurance companies will have to radically change their attitude toward the disease or they will be compelled to reject hundreds of persons with tuberculous infection who are in every sense quite as good risks as the average of those now accepted.

The recognition of tuberculous infection as distinct from tuberculous disease will do much toward ridding this common disease of its present terrors and will go far toward solving the entire tuberculosis problem. The failure of medical men to see the various stages of tuberculosis in their proper proportions and their reluctance to present inevitable and indisputable fact to the patient, is largely responsible for the blind and unreasoning dread of the word "tuberculosis" among the people.

Not until the medical profession sees the disease in a different light will the patient receive his diagnosis sanely nor will he receive it early enough to save him from prolonged illness or unnecessary death.

Pottenger is responsible for the assertion that there is a time in which every case of tuberculosis is curable. This is not, however, after it can be demonstrated by ordinary means of physical examination even at the hands of the most talented of diagnosticians. And even in the massive, acute form of the disease, there is doubtless a period in which cure could be brought about. That time, however, may have been twenty years ago, when it could not have been recognized as a disease at all; but merely as an infection.

PROGRAM AND DIRECTIONS FOR THE MENTAL EXAMINATION OF ASOCIAL, PSYCHOPATHIC AND DOUBTFUL SUBJECTS.

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(Continued from page 865.)

ROUTINE PROGRAMS.

The following are minimum programs. One of them should seldom occupy less than an hour or more than an hour and a half. The data so obtained may be supplemented by means of additional tests selected from Table 2 on page 60, in accordance with the nature of the individual problem.

The Yerkes-Bridges Point Scale is made the basis of the examination, except for illiterates and non-English speaking subjects, when it is replaced by the Knox Scale. It is true that all save one (No. 18) of the Point Scale tests can be given to illiterates, but such subjects are at a disadvantage with many of the other tests, partly through inferior training, and partly through their diffidence in the presence of anything that is to them suggestive of the school-room.

For the present it is desirable to secure the Binet rating whenever possible for the purpose of comparison, especially as this can be done at the cost of so little additional time.

Most cases can be classified, conveniently for examination purposes, as precautionary, mental cases, social cases, suspected psychoses, illiterates and non-English speaking* subjects. The routine programs subjoined are arranged under these heads. The sense in which each of these phrases is used will be discussed in the following section. This classification is open to criticism on logical grounds but it is believed that it will be found convenient in practice.

I. PRECAUTIONARY CASES.

1. Y, in full.
2. B, to obtain rating.
3. One of the following tests:
(3-9 years) H I,
(From 9 years) H XXIII.

II. MENTAL CASES.

1. Y, in full.
2. B, to obtain rating.
3. Two of the following tests, including, if possible, H XXIII:

* In this discussion, "non-English speaking" is used of the individual subject. This differs from the usage in the publications under No. 11 of the references on page 63 (given also under "Working References," page 6), where "non-English" and "non-English speaking" appear as abbreviated forms of the expression, "children of non-English speaking parents."

- (4-5 years) Seguin's form-board,
- (4-9 years) H I,
- (5-8 years) H II,
- (From 8 years) H III,
- (From 9 years) H XXIII,
- (From 10 years) H IV,
- (From 12 years) H V.

4. As many of the following tests as are applicable:

- (From 7 years) H VIII,
- (From 7 years) H XIII,
- (From 9 years) H XII.

5. (Adults) prose completion, and labyrinths.

III. SOCIAL CASES.

1. Y, in full.
 2. B, to obtain rating.
 3. One of the following tests:
(3-4 years) Seguin's form-board,
(4-9 years) H I,
(From 9 years) H XXIII.
 4. (a) Unstable individuals:
(From 6 years) H VI,
(From 7 years) H XIII,
(From 12 years) H XVI,
(From 14 years) labyrinths.
(b) Court cases and delinquents:
(From 6 years) H VI,
(From 9 years) H XXI and XXII.
(From 13 years) ethical discrimination,
(From 14 years) labyrinths, and K adult 7.
 - (c) Economic cases:
(From 7 years) H VIII and XIII,
(From 12 years) H XVI.
- Also, two of the following tests:
(From 8 years) H III,
(From 10 years) H IV,
(From 12 years) H V.

IV. SUSPECTED PSYCHOSES.

A. English speaking subjects:—

1. Y, in full.
2. B, to obtain rating.
3. One of the following tests:
(4-9 years) H I,
(From 9 years) H XXIII.
4. One of the following tests:
(From 8 years) H III,
(From 10 years) H IV,
(From 12 years) HV.
5. Such of the following as are applicable:
(From 6 years) H VI,
(From 7 years) H XIII,
(From 9 years) H XII.
6. (From 14 years) prose completion, labyrinths, and K adult 7.

B. Non-English speaking subjects:—

1. K, to obtain rating, if possible.

Note, (1) that the repetition of digits is a test of very unequal difficulty in different languages; (2) that the average interpreter, who is not a

psychologist, cannot be relied upon to translate problem questions and their answers without modifying their value for examination purposes (questions like K XII 2, 3 and 4 fall under this suspicion); and (3) that memory tests involving narrative, such as K XI 3, are, in like manner, of doubtful value when given through an interpreter.

2. One of the following tests:

- (4-9 years) H I,
- (From 9 years) H XXIII.

3. One of the following tests:

- (From 8 years) H III,
- (From 10 years) H IV,
- (From 12 years) H V.

4. (From 14 years) labyrinths, and K adult 7.

V. ILLITERATES.

1. K, to obtain rating.
2. Y, omitting No. 18.
3. Such of the following tests as are applicable: B VI 1, VII 1, VIII 4, IX 1, X 1.
4. One of the following tests:
(3-9 years) H I,
(From 9 years) H XXIII.

VI. NON-ENGLISH SPEAKING SUBJECTS.

1. K, to obtain rating, if possible (see above, IV B 1 note).
2. Such of the following tests as are applicable:
Y 1 = B VI 5,
Y 2 = B VII 3,
Y 3 = B IV 4 and V I,
Y 16 = B X 2.
3. (From 9 years) for subjects familiar with our money, B IX 1 and X 1.
4. (From 10 years) B X 4.
5. One of the following tests:
(3-9 years) H I,
(From 9 years) H XXIII.
6. Such of the following tests as are applicable:
(From 7 years) H VIII,
(From 8 years) H III,
(From 10 years) H IV,
(From 12 years) HV and XVI.

REMARKS ON CLASSIFICATION OF CASES.

Most of the cases fall into one of three classes, those that may be described as precautionary, the mental problems, and the social problems.

Under the first head come those subjects who have given no evidence of abnormality. Such individuals are sometimes examined because of abnormality in other members of the family, and sometimes they are referred from some social agency which has recently taken charge of them, the mental examination being utilized as one means to a more certain understanding of their needs and capabilities.

In such cases, a favorable result of the routine examination usually closes the case, at least for the time. That is, it is sufficient if the subject is found to be mentally normal or advanced, or suffering only such slight retardation as may be abundantly accounted for by known conditions.

Sometimes, however, a more searching examination is especially requested, and then the examiner must use his judgment as to the additional tests to be employed. From the "history" of the case, or from conversation with the subject or with the person accompanying him, or from the record made already on the routine examination, it may appear that certain traits deserve special study. In general, it may be said that, with children up to about twelve years of age, learning capacity is of prime importance; while, with older subjects, practical judgment and constructive imagination should be stressed.

Under the second head come those patients who have given definite evidence of mental deficiency, such as children who repeatedly fail of promotion in school. This class, again, may be separated into two groups according as the individuals react normally in some relations or in none.

Occasionally a subject, presented as an all around defective, makes a normal record on the tests, and one is forced to conclude that the defect is in the environment, or possibly in some highly specialized function which the tests fail to reach. In such a case, additional tests may be given in order to strengthen the evidence for a conclusion which will be, at least unexpected, and possibly even unwelcome. Generally, however, such subjects do not react normally to the tests, and the task of the examiner is to determine the amount of deficiency and the sort of care likely to be necessary.

On the other hand, if it is only in certain relations that evidence of defect appears, there is much greater likelihood that the score by the Binet or the Point Scale may be normal. A child, for example, may be quite backward in school, but apparently normal in all other ways, and his backwardness may turn out to be due to general mental defect (an arrest of development which is just beginning to show itself), to a specialized defect, or to unfavorable environment. If the examination indicates normal mentality, that may be sufficient if the environment is known to be doubtful and can be improved. Otherwise, one should look for some specialized defect, such as poor visual memory; and, also, for any specialized ability which might be utilized as compensation for the defect. Thus, if suitable training could be given, good practical judgment might combine with strong kinaesthetic memory to atone for a considerable deficiency in visual verbal memory.

If a subject proves to be seriously defective, the question arises as to the kind and amount of care required. The guardians need data on

which to base decisions as to custodial or institutional care, and as to whether the subject can probably earn his own living, and, if so, by what sort of labor and with how much supervision. The decisive factor in the case is often a matter of social reactions, but the mental examination should contribute its share towards the solution. Important points are motor co-ordination, attention, ability to learn by experience, auditory memory, practical judgment, stock of ordinary information and ability to acquire such, and suggestibility.

The problems classed as social are met at all ages, but more frequently as the age increases, until by sixteen or seventeen nearly all fall into this group. It includes, besides court cases and delinquent girls, many economic cases, individuals from fourteen upwards who either refuse to work or fail to keep any position, and unstable individuals, as, for example, children who are said to be unmanageable, having violent fits of temper and perhaps cruel to younger children.

The origin of the trouble may lie in an unfavorable environment, a general mental defect, some mental peculiarity, or a combination of these.

Here are found a large proportion of sub-normal and borderline cases. An individual may develop fairly well up to twelve or thirteen years, and then suffer an arrest of mental development. If he leaves school early to go to work, the school record may give no evidence of excessive retardation. A mental examination at fifteen may fail to give conclusive evidence; but it may show, for example, high suggestibility, and slow, inaccurate or inappropriate reactions. It is well then to request a second examination after six months or a year.

Sometimes the Point Scale examination shows a distinctly good mentality, and then a few supplementary tests may furnish indications of abilities that would repay training. Occasionally the whole trouble arises from the fact that an able individual lacks suitable outlet for his energies.

Roughly speaking the significant functions are likely to include, for court cases and delinquents, practical judgment, constructive imagination, suggestibility, and reaction-time; and, for economic cases, attention, auditory memory, and ability to learn by experience; while, in all social cases, abnormalities of the affective life are likely to be present.

When a psychosis is present or suspected, the examination should stress motor co-ordination, attention, memory (including "information" tests as well as those ordinarily grouped under memory), suggestibility, and imagination.

For examination purposes, the illiterates and the non-English speaking subjects form groups by themselves, regardless, to a considerable degree, of the problem involved.

The illiterates are generally immigration cases, the practical question being whether they

shall be admitted or deported. Important facts to be determined are the subject's ability to learn by imitation or by experience in concrete situations; to analyze such a situation and to plan on the basis of that analysis; to acquire, retain and use practical information, and, for English speaking subjects especially, to comprehend and to follow verbal instructions.

The non-English speaking subjects include, besides immigrant cases, not a few individuals who have been in this country for a number of years. Typical cases of this sort are the Hebrew women from Russia, who have had no formal education in their old home, and who come to this country after they have been married several years. They usually live in Hebrew communities, and the care of home and children confines them so closely that years may pass without their learning more than an occasional word of English.

ANALYSIS OF TWO ILLUSTRATIVE CASES.

To illustrate the practical working of these programs, two cases, one mental and one social, will now be analyzed.

A MENTAL PROBLEM.

Let us suppose a boy of 13.4 years is brought for examination because he failed of promotion in school last year and bids fair to fail again this year. He is said to appear bright enough out of school, and to be normal in most ways; but he is a state ward, little is known of his people, and an arrest of mental development is feared.

He is prepossessing and responsive, and makes a favorable impression on the examiner.

The result of the Point Scale examination is a score of 82 points. He belongs to the unfavored, English speaking class, and the graph for that class shows 79 to be the norm for his age. It also shows 82 to be the norm for 15 years. Apparently, then, there is no general retardation. It remains to investigate the possibility of a specialized defect, and, if that is found, of special abilities which may tend to compensate for it.

His Point Scale record shows that, in the repetition of sentences, he gave only the first group correctly; in the repetition of digits he gave five correctly, but failed on six; he gave 70 words in 3 minutes; attempting to use three given words in one sentence, he formed a compound sentence, which counts as two; he failed to define justice, knowing only Justice of the Peace; of the analogies, he was able to complete but three; in drawing from memory, he obtained one point credit on each figure; and he failed entirely on the third of the dissected sentences.

The indications, thus far, are of a memory de-

fect, with a development of the reasoning powers which is somewhat in advance of his age.

We next fill out the Binet record sheet (Godard's revision) as far as may be from the Point Scale record. The first failure occurs at V 3. As this is a test of memory span, and there is no other failure until X 2 is reached, we compromise and begin at VIII. He succeeds with these, and we pass on to IX 1, 3 and 4. He gives the change in IX 1 accurately and promptly, returning one of the dimes and picking out a nickel and a copper for the six cents. On IX 3, he fails to give the year, and we find that though he has read it and heard it repeatedly he has rarely had occasion to write it. He gives correctly the day of the week, remarking that "yesterday was Sunday," and, after a slight hesitation, the month and the day of the month, adding "tomorrow will be St. Patrick's Day." He fails in IX 4, making two errors, one omission and one inversion. He passes on X 1 and XII 5, but fails on XI 4. Thus he makes a record of 10.6 years (if we ignore the failure on V 3), and we find here still further evidence of good reasoning power with poor memory.

H XXIII is finished in 6 minutes with no errors.

H IV, first trial, OK in 2 minutes, with 3 errors; second trial, OK in 1 minute, with no errors.

H VIII, no errors, neat work, with no hesitation.

H XII and XIII, 12 out of 20, and 7 out of 12 details, respectively; in both cases in logical order, but with no attempt at verbal accuracy.

We, therefore, conclude that the boy is not mentally retarded; that he has a specialized memory defect, namely, very poor verbal memory whether for visual or auditory presentation; that his memory is apparently of the motor type; and that his logical faculty and practical judgment are somewhat in advance of his age.

It is probable that the methods of the ordinary school are ill adapted to him, inasmuch as they involve a good deal of verbal memory.

There is the possibility that we are dealing here with a peculiarity of development and not with a permanent condition. It would be well, for the present, to give him the help of a special teacher or a special class. If he continues, even then, to lose ground he should be given a chance in a technical or a trade school.

We should like to examine him again in about a year.

A SOCIAL PROBLEM.

A common type of social problem is the adult who fails to earn a living. A woman of twenty-five, for example, is sent in by the Associated Charities, who report that she comes of sturdy, hard-working people, and that her brothers and sisters have done well in their various ways and in proportion to their opportunities; but that he has drifted from one position to another ever

since she left school at fourteen. Her employers say that she is strong and willing, and pleasant to deal with, but that she does not learn to do even the simplest work properly, that she cannot be trusted to do an errand correctly, and that she sometimes leaves a place without notice and without apparent reason.

On the Point Scale she scores 50, the norm for 8.7 years, whereas an adult should make 90 points. She can repeat only three digits, and only the shortest group of sentences. So far her record resembles the preceding, but in her case it is no specialized defect. She scores only two points on the backward counting. She fails to interpret any of the Binet pictures, but gives very passable descriptions. In comparing remembered objects, she succeeds in giving only one point of difference for each pair, and her definitions of concrete terms are all in terms of use. She gives only 50 words in 3 minutes; fails entirely to compose a sentence with the three given words (she makes a separate sentence for each word); and comprehends only the first two of the four questions in No. 15. She fails on both drawings in No. 16, detects only the first two of the absurdities, and fails on all three of the dissected sentences. She is able to define charity, but not obedience or justice, and she solves only the first of the six analogies.

It is a clear case of feeble-mindedness, and the problem now takes the form of a question as to whether she can probably earn her own living under any conditions, and whether she requires custodial or institutional care.

To obtain the Binet rating, we transfer the record as before to the Binet sheet. We then see that, thus far, she has scored no success above nine years, except XII 4, which is not always significant, and that her failures begin with V 3. As this is not a case of specialized defect, we give IV 1 and 2, both of which she passes, thus making a clear score at the four-year level. Working upward, we find that she succeeds with V 4, but fails on V 5 ("patience"). She passes all again at VI and VII. At VIII, she gives the days of the week correctly, but fails on counting the stamps. At IX, she fails on 1, 3 and 4, giving rather complacently thirteen coppers in change, failing to give anything beyond the day of the week in 3, and naming only seven of the twelve months, and those in irregular order. At X, she recognizes the money correctly. At XI, she fails entirely on the rhymes. Her Binet record, therefore, stands as follows: all right at IV, 3 right at V, all right at VI and VII, 2 at VIII, 1 at IX, 1 at X, none at XI, and 1 at XII. Her Binet age will be 7.6 years if we reckon from the four-year level, or 8 years if we take seven years as the starting point. In the latter case, it should be noted that failures occurred at the five-year level.

Even if the Binet rating were not desired, we should probably give the coin and calendar tests to a subject of this type. Her failures in them

show her incapacity for holding her own in business relations. A woman over twenty years old, who has always belonged to the class of unskilled laborers, and who has not acquired this much practical information is clearly incompetent to manage her own affairs.

The next question is whether her failure to master simple tasks is due to herself or to her environment.

H XXIII is incomplete after 10 minutes. She has placed 5 pieces correctly, made 2 logical and 2 illogical errors, and is still experimenting with the tenth square.

At H VIII she works willingly, but with three errors and one omission in the graphic learning, and four errors and an omission in the reproduction.

In H XIII, she is able to reproduce only two of the twelve details.

In H III, she uses the method of trial and error, and succeeds after three minutes with ten extra moves, the same error being repeated in several instances. She is pleased with her success, and we decide to repeat this as a supplementary test in order to observe the effect of practice. The result is a failure after three minutes.

In H IV, she fails after 8 minutes, making 24 moves and placing correctly only 4 pieces.

In H XVI, she makes a good record as regards both speed and accuracy.

As a second supplementary test, H VI is given. She gives a fair description, but no interpretation, and several details of her free recital are imaginary. Under questioning she is very inaccurate, and she accepts nearly every suggestion offered.

Apparently her learning capacity and ability to profit by experience are very slight; she has little or no ability to plan; her auditory memory is very poor and her suggestibility high.

On the other hand, we notice that with all her blunders on the puzzles she handled the pieces with considerable deftness, her square and diamond were well and firmly drawn, she was successful in the discrimination of weights, and did well in the tapping test. Moreover, she is doing rather better towards the close of the examination than in the beginning.

We, therefore, conclude that she is feeble-minded; that she will require custodial, if not institutional, care; but that, with supervision, she should prove a good worker at simple tasks.

As a matter of fact, such an individual must generally be placed in an institution sooner or later on account of the difficulty of providing adequate supervision elsewhere. Her high suggestibility in combination with the lack of reasoning power and of ability to learn by experience would make her a ready tool or victim, as the case might be, of the unscrupulous.

Reports of Societies

CARNEY HOSPITAL CLINICAL MEETING.

CLINICAL MEETING OF THE STAFF OF THE CARNEY HOSPITAL IN THE HOSPITAL BUILDING. THURSDAY, APRIL 22, 1915, AT 8.15 P.M.

DR. LEEN, *Chairman*.

(1) DR. JOHNSON reported two cases:

a. A case of carcinoma of the vaginal vault. Twenty-one years ago the patient had both tubes and ovaries removed for inflammatory disease, by abdominal operation. Two years later the uterus was removed per vaginam, for pelvic pain and discomfort. Neither on curetting nor on hysterectomy was there any trace of cancer. The patient was perfectly well following the second operation, until recently, when a slight bleeding from the vagina was noticed. There was found on examination a small mass in the vaginal vault, which proved, under the microscope, to be carcinoma. Radical operation was out of the question. This seems to be a case of primary carcinoma of the vagina, a comparatively rare condition.

b. A case of normal pregnancy in the third month. One year ago the patient complained of abdominal pain and was operated on; the right ovary, a dermoid, was removed and about four-fifths of the left ovary was resected for cystic disease. A feature of the case was the presence of every presumptive sign of pregnancy.

(2) DR. HEPBURN showed two cases of bone syphilis from the surgical out-patient.

a. A girl of nine fell while roller-skating, injuring her right arm which quickly showed a swelling. After trying home remedies for two or three days, she was brought to the out-patient department. There was found a nodular swelling of the upper half of the ulna, and it seemed probable that a subperiosteal fracture had taken place. The x-ray showed no fracture but the Wassermann was four plus.

b. A man of thirty-eight showed a macular eruption of the left leg with some superficial ulcerations and thickening of the tibia. Treatment for rheumatism had been given at some other hospital, the patient said, but the x-ray showed destruction of bone in addition to the thickening and the Wassermann was four plus.

(3) DR. RUSHMORE showed two cases that had been operated on for prolapse of the uterus.

a. A woman of fifty-four, whose prolapse began over six years ago. Six years ago she had undergone plastic operations, but the prolapse recurred in a few months. Later an abdominal supravaginal hysterectomy was performed, with recurrence of the prolapse in a few weeks. The operation which was performed two weeks ago was to suture the cervical stump into the abdominal wall by non-absorbable sutures, without tension. Hysterectomy makes these cases more difficult to cure as it gives a smaller mass of tissue to incorporate in the abdominal wall. An extensive plastic below also was done. The immediate result is perfectly satisfactory.

b. The second case was one of incomplete prolapse; though the protruding mass was three inches in diameter, the fundus was still in the pelvis. The

patient was seventy-four years of age, with chronic bronchitis, blood pressure of 170 mm., slight swelling of the feet and occasional irregular heart action, with no sign of valvular disease or disturbed renal function on two examinations of the urine. The need of relief was urgent as the patient was helpless with the protruding mass, but an extensive operation under ether seemed ill advised. It was thought best to fix the uterus to the anterior abdominal wall, and thus give at least some relief for the few remaining years of life. Under local anesthesia the abdomen was opened, but the uterus could not be lifted from its position low in the pelvis without causing undue pain. A little ether was given to complete the operation, which consisted in incorporating the uterus with the abdominal wall. Four non-absorbable sutures were used, passing through fascia of recti and deeply into the muscle of the uterus. This gave also a large area in which adhesions may form to assist the sutures. The immediate result is perfectly satisfactory.

(4) DR. LEEN showed three cases.

a. Recurrent gallstones. A man of forty-seven, who had been operated on at the Massachusetts General Hospital seven years ago for gallstones. Stones were found in the gall-bladder and in the hepatic duct. There was also a stone in the common duct, which disappeared after manipulation, but fragments of stone were recovered from the common duct. The convalescence was perfectly satisfactory and the patient was well up to one year ago. Then occurred an attack of abdominal pain with slightly blood-stained vomitus. Five weeks ago a similar attack, followed by loss of seventeen pounds of weight. Four days before admission, another attack, with severe lancinating pain, originating apparently in the right upper quadrant but marked also on the left, and lower down. Greenish vomitus but no blood. On admission there was a suggestion of icterus, temperature 102.5, tenderness over the region of the gall-bladder, leukocytes 20,000. He was seen in consultation with Dr. Bottomley who advised operation which the patient refused. He is improving daily. In the absence of operation the diagnosis must remain in some doubt but recurrent gallstones seems most likely.

b. Hydropneumothorax. A man of twenty-eight years whose family and past history were negative except that he had pneumonia twice in childhood. Two weeks ago, frontal headache and pain in the right side of the chest which gradually became worse, but did not interfere with work until four days before admission. No history of exposure to undue heat or cold. No tonsillitis. There had been a dry cough since the beginning of the present illness, but no shortness of breath and no palpitation of the heart. On the day of admission before he came to the hospital his chest was tapped by his physician. On admission he looked rather sick and was found to have a clearly marked hydro-pneumothorax of the right side, the heart markedly displaced to the left of the median line. Succussion was easily made out. The examination of the sputum so far has shown no sign of tuberculosis.

c. Tetanus. A boy who four weeks ago and two weeks before admission injured his foot on a nail. On admission, temperature 103; typical facies of tetanus with risus sardonius, opisthotonos and general contraction of muscles. He has received in all twenty-one thousand units of antitoxin, intraven-

ously and intraspinously and is now well on the way to recovery.

(5) DR. O'HARE spoke on experimental study of renal function. The object of the study in which he had been particularly interested is to obtain a simple short and efficacious test of renal function. These criteria no test as yet satisfies. The objections to the present methods were discussed. The comparison of the nitrogen and the salt in the blood and in the urine at the same time, offers the most hopeful outlook for a satisfactory method at the present time.

(6) DR. A. R. MACAUSLAND showed two shoulder cases for Dr. W. R. MACAUSLAND.

a. Subglenoid dislocation in a boy of long standing, apparently since infancy, and

b. Ankylosis in a girl. Both cases were under treatment and showed improvement.

He then spoke at some length on separation of the epiphysis of the head of the femur, reporting five cases with x-rays, and showing two cases now under treatment in the hospital. These two cases represented two types, the "fat boy" and the anemic individual; both had been treated for some other condition of the hip which was not present. The history is typical in many of the cases, and the x-ray easily confirmatory, yet the cases are often treated for tuberculosis of the hip.

c. Exhibition of two cases, with x-rays, of fracture of the tarsal scaphoid.

(7) DR. MAHONEY showed a patient who had been operated for a breast tumor which weighed fifteen pounds on removal. Photographs gave an excellent idea of the gross relations. The patient was single, thirty years of age. Five years ago noticed a lump in the right breast which appeared following a trauma, with slight discoloration of the skin. Never sore or painful until of late. Gradual increase in size, giving a dragging pain. In the past year menstruation has been very slight, the tumor has increased more rapidly and the swelling has not decreased following menstruation as the patient says was formerly the case. At operation numerous large glands were removed from the axilla. The microscopical diagnosis was adenofibrosarcoma.

(8) DR. BUTLER showed lantern slides of x-rays of a number of intra-abdominal conditions, as ulcer of the duodenum, cancer of the stomach, gall-stone disease, cancer of the large intestine, hour-glass stomach and adhesions due to tuberculosis of the bowel and peritoneum.

(9) DR. LEEN showed a case of relapsing fever. The patient, an Armenian, showed on admission nothing but a slight cold. He was kept under observation for several days and about to be discharged when he had a sudden elevation of temperature to 103, and the spirochete of relapsing fever was found in his blood that night. Slides were shown with the spirochete easily visible. Dr. Leen then gave a lantern slide demonstration of the spirochete of relapsing fever and of syphilis, the trichina and filaria, and an extended series showing the evolution of the parasite in uncinariasis.

STEPHEN RUSHMORE, *Secretary.*

Book Reviews.

Urinary Analysis and Diagnosis by Microscopic and Chemical Examination. By LEWIS HEITZMANN, M.D., New York. Third revised and enlarged edition. New York: William Wood and Company. 1915.

In this third edition of a well-known text-book on urinalysis, the author has attempted to incorporate the many advances made since the appearance of its immediate predecessor. The work is divided into three parts. In the first, on chemical examination, the aim has been to include all the simpler methods and tests. Many new tests have been added but the more complicated tests are omitted. The second part, on microscopic examination, bears the chief stress of the work, and in it the author emphasizes his belief that correct diagnosis can generally be made by careful high power study of urinary sediment. In the third part, on microscopic diagnosis, a number of full page illustrations have been added and the entire work is now illustrated with 131 figures, mostly original. An appendix contains a standard form for report of urinalysis and a list of apparatus and re-agents required. The illustrations are useful and accurate, though often not artistic, and the book should prove of definite value to students and practitioners, especially in the field of clinical microscopy.

Clinical Diagnosis. A Manual of Laboratory Methods. By JAMES CAMPBELL TODD, Ph.B., M.D. Illustrated. Third edition, revised and enlarged. Philadelphia and London: W. B. Saunders Company.

The first edition of this work, published under the title of "A Manual of Clinical Diagnosis," was reviewed in the issue of the JOURNAL for January 21, 1909 (Vol. clx, p. 81); and the second edition under the present title, in the issue of the JOURNAL for June 20, 1912 (Vol. clxvi, p. 935). In this third edition the general scope of the work is again somewhat enlarged, chiefly by the addition of new material as the outgrowth of questions arising in the class and laboratory. Considerable additions have been made, especially to the chapters on sputum, urine and animal parasites. The chapter on the use of the microscope has been enlarged and the section on cerebro-spinal fluid rewritten in the light of recent advances in knowledge. Numerous new methods of laboratory diagnosis are included and a new chapter has been added on sero-diagnostic methods by Dr. Ross C. Whitman, professor of surgical pathology and serology in the University of Colorado. The number of illustrations has been increased by thirty-five, the new figures being chiefly photomicrographs. The work should continue to be of practical usefulness to students and practitioners.

Practical Tropical Sanitation. By W. ALEX MEYRHEAD. New York: E. P. Dutton and Company. 1915.

This British treatise on tropical sanitation, dedicated to Sir Ronald Ross, represents the experience of a royal army medical officer in West Africa. It is intended as a manual for sanitary inspectors and others interested in the prevention of disease in tropical and subtropical countries. The text is based on the author's lecture notes used at the School of Army Sanitation at Aldershot. The treatment of the subject is wholly practical, theory and experimental research being almost wholly eliminated. The appendix contains a large amount of valuable material chiefly of a technical nature. The work is well illustrated with 114 figures. It should prove of definite practical value for army officers and others engaged in field work in the prevention and control of tropical diseases.

The Origin and Nature of the Emotions. By GEORGE W. CRILE, M.D. Edited by AMY F. ROWLAND, B.S. Philadelphia and London: W. B. Saunders and Company. 1915.

This volume of miscellaneous papers, consisting of a series of eight essays and addresses delivered on various occasions, may be regarded as a supplement to the author's works already published on the subject of surgical shock and the nature of anoci-association. The first of these addresses was the ether day oration at the Massachusetts General Hospital in 1910, published in the issue of the JOURNAL for Dec. 8, 1910 (Vol. clxiii, p. 893). Other addresses present his theory of the relation of phylogenetic association to the emotions, and the relation between brain functions and the physical state of brain cells. Dr. Crile takes a mechanistic view of psychology and undertakes to establish a mechanistic theory of disease. The tendency of both these concepts bears a striking parallelism to Loeb's mechanistic conception of life. However one may agree or disagree with Dr. Crile's deductions, which, like most conclusions from postulated theory are, perhaps, carried unwarrantably far, his work remains a valuable and suggestive contribution, both to surgical research and to biologic philosophy.

The Sun Cure. By DR. A. ROLLIER. Paris: Baillière and Son. 1914.

This French monograph presents the results of ten years' work by the author in the development of the method of sunlight cure in the treatment of surgical tuberculosis. However radical his methods may appear, his results have, within recent years, become known and seem, in considerable measure, to justify the procedures. The

book is abundantly illustrated with many colored plates, radiographs and figures in the text.

Legal Principles of Public Health Administration. By HENRY BIXBY HELMSWAY, A.M., M.D. Chicago: T. H. Flood and Company. 1914.

This text-book of legal appearance aims to present for the benefit both of lawyers and of physicians the legislative and judicial principles upon which public health administration is based. Compilations and analyses of public health laws have previously been published, but this is the first modern treatise to attempt the scientific legal exposition of the principles of public health and preventive medicine. The introduction by Professor John Henry Wigmore of Northwestern University emphasizes the importance of such a work as a basis of precedent and authority in legal decisions. The author's foreword calls attention also to the necessity of a recognized legal code underlying all attempts at public health improvement and regulation. The text is divided into two parts, the first dealing with general principles, the second with special topics such as quarantine, licenses, water supplies, drainage, garbage disposal, pure food, drug and industrial regulation, school inspection and engineries. This last chapter is one of especial interest. On account of the still rudimentary character of this science, so far as it is positively developed, the chapter is necessarily brief, but so far as it goes, may be regarded as sound and conservative. The volume closes with an extensive index of cases cited and a general index to the text. It should be a work of value to physicians purposing to engage in public health studies or work, as well as to lawyers and legislators who may be concerned in similar matters.

State Registration for Nurses. By LOUIE CROFT BOYD, R.N. Second edition. Philadelphia and London: W. B. Saunders Company. 1915.

The first edition of this monograph was reviewed in the issue of the JOURNAL for June 22, 1911 (Vol. clxiv, p. 896). This second enlarged edition represents the growth of the corresponding material during the past four years. It contains the same headings as the previous edition with the exception that the excellent bibliography of the first edition has been replaced by the full text of the laws prevailing in the various states of the union, relative to the registration of nurses. This text constitutes the bulk of the increase in the size of the book, but it seems a pity that its inclusion should have been felt to necessitate the elimination of the bibliography. Like its predecessor, this publication should be of value to all interested in the profession of nursing and its legal status.

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PHYSICAL TYPES IN THE HUMAN BEING.

There is abundant evidence that the past ages produced their observers no less keen than we can boast: it is even to be questioned if the increasing cloud of specialties has not tended to make for short-range vision. Certain it is that no modern has improved much upon the description given some 2400 years ago by Hippocrates or 2000 years ago by Lucretius of a disease so characteristic and unchanging in its manifestations as epilepsy.¹

It is equally certain that for at least 2000 years there has been a consciousness of the division of the human race into opposing types. Thus Plutarch² makes Caesar say in substance, "As for those fat men and smooth combed heads, I never reckon of them; but these pale-visaged and carrion lean people, I fear them most." These words as later paraphrased by Shakespeare³ are worth reading as a graphic descrip-

tion of the mentality of the carnivore. Nursery rhymes such as "Jack Spratt," attest the same appreciation of type by the so-called common people. More recently, in the scientific world, Hall⁴ has stated that infant nature divides sharply into two types, the passive and the active—precursors of those recognized in the adult by Caesar.

Since 1890 or so, interest in general fundamentals seemed to have yielded to detail work; but lately a healthy interest in these broader aspects of medicine is again apparent. Thus the question of type and development has been approached on biologic grounds as evidenced by the papers of Bean⁵ and others. Recently we had occasion to refer to the first of a series of papers by Bryant⁶ on this subject of type, the second of which is about to appear. In this issue we present as the current Shattuck lecture, a review of our existing knowledge of type and its potential usefulness to medicine of the future. Dr. Goldthwait under the title of "An Anatomic and Mechanistic Conception of Disease," has based his argument upon his own observations and those of others, and has thrown the burden of proof that type does not exist, or existing is unimportant, upon those who, like the anti-vaccinationists, refuse to be convinced by well supported facts. The case for the existence of type may be considered closed and proved.

The study of type has come to stay, to be a powerful factor in constructive work of the future. Many basic problems present themselves, as the effect of diet and climate upon type, and the relation of both these factors to the evolution of type in a given locality. Thus Cattell⁷ has recently argued that climate has a striking influence upon mentality, and Ellsworth Huntington⁸ believes that climate may be a determinator of civilization.

Education is, however, the real question at issue. All the facts may be correct, but if they remain unknown for years they must needs be discovered anew as were Mendel's laws, before they become useful. Dr. Goldthwait in his deductions has covered the field of possibilities, indications and necessities so thoroughly that little can be said except in reinforcement of his remarks. He has shown at least some of the definite meanings of type for the physician alert to new paths to efficiency. He has considered the present tendency, due in part to the increasing prevention of natural elimination of the unfit, toward the carnivorous type with both its

good and bad qualities, and suggested methods by which the tendency of the race in this part of the world may be turned to positive good account for the future. But of greatest moment is his statement that the coming importance of the understanding of type will necessitate a new method of teaching anatomy, physiology and the allied sciences.

The time is in all certainty soon coming when it will no longer be taught as at present in the best schools that, for example, the human intestine is so many feet long, and that measurements obtained above and below this figure are variations from the normal. It will, on the contrary, be recognized that there are two structurally, functionally, absolutely different types, both normal of their kind. One type will have perhaps double the length of intestine to be found in the other; the text book's normal of old will lie somewhere between these extremes, and will be of less consequence than either, for the ailing patient will probably fall either one side of the normal or the other, according to his type. But after all, the time will come when the student will acquire this newer knowledge in his routine instruction.

The vital issue is the instructing of present medical graduates upon whom devolve the care of patients now, before the arrival of the next generation of doctors and educators. The opinion is ventured that not one in a hundred of the intelligent medical men now in practise have ever heard of type, or having heard, realize what it may mean to them or to their patients. How many men are there who, looking at a man in the street, can give an approximately correct outline of the anatomy and internal physiology of the stranger? Yet for the medical man this or something like it should be common knowledge.

If repetition, reiteration without irritation, be the key to education in a new subject, then it behooves us to reiterate that the essayist has in his discussion of type projected a ray of light into the medical teaching of the future. Having said it, we repeat it in the faith that truth repeated brings conviction save where densest

ignorance prevails. Some medical school will be the first to incorporate lectures on type in its curriculum. The others will follow where they can no longer lead, giving to student and patient alike the benefit of this newer knowledge of type, this newest aid to the science and art of medicine.

INJECTION OF THE SPHENO-PALATINE GANGLION.

In recent years there is a noticeable tendency to reach parts of the nervous system which are not easy of approach, in our therapeutic endeavors to relieve the pains which could not very well be alleviated satisfactorily in other ways. In this connection we may mention injections into the peripheral nerves, particularly the trifacial, epidural injections and perineural infiltrations for the relief of the pains of sub-acute and chronic sciatica, injection into the sphenopalatine ganglia, and, very recently, injection into the Gasserian ganglion.

The use of injection into the sphenopalatine ganglion is not as widely known as it should be, and it is for this purpose that the reader's attention is here called to it. In a paper read before the American Academy of Ophthalmology and Oto-laryngology in 1907, Stein, of Chicago, suggested the injection of alcohol into the nasal nerve and into the region of the sphenopalatine foramen. So far as known, however, Greenfield Sluder, of St. Louis, first made mention of alcoholic injection directly into the sphenopalatine ganglion in the *New York Medical Journal*, August, 1909.

This method of treatment may be employed in four general conditions, as follows: hay fever, the syndrome of true sphenopalatine neuralgia, hyperesthetic rhinitis, and post-operative neuralgia. In true sphenopalatine neuralgia there is pain in the region supplied by the branches of the ganglion, the typical location being over the root of the nose, in and about the eye, over the frontal region, and even radiating into the pharynx and tonsil, the ear, the mastoid and occipital region, and not rarely into the neck, shoulder, arm and even fingers. This condition is usually associated with suppuration in the sphenoid sinus and ethmoid cells, the pain persisting after proper surgical treatment of the sinuses and cells has been instituted. In a small number of these cases it is found that the pain

REFERENCES.

- ¹ Paterson, Trans. Nat. Asso. for Study of Epilepsy, 1901, Vol. 1, No. 11.
- ² Alexander and Caesar, Plutarch's Lives (North's translation).
- ³ Shakespeare, Julius Caesar, Act i.
- ⁴ Hall, Internat. Congr. School Hygiene, 1913, Vol. iv, No. 10.
- ⁵ Beane, Johns Hopkins Hosp. Bul., 1912, Dec., p. 263.
- ⁶ Bryant, Boston Med. and Surg. Jour., 1915, Vol. clxxii, p. 321.
- ⁷ Cattell, Literary Digest, 1915, May 22.
- ⁸ Huntington, *ibid.*

first makes its appearance after thorough opening and draining of the accessory sinuses has been carried out for the relief of the chronic suppurative sphenoiditis and ethmoiditis. It is these cases which are properly referred to as post-operative neuralgia of the spheno-palatine ganglion. Hyperesthetic rhinitis differs from hay fever in that it makes its appearance at any time of the year, the paroxysms being irregular in their time of appearance, their duration and severity.

The technic of this useful operation as described by Pollock (*Illinois Medical Journal*, May, 1915) is not difficult, there is comparatively no danger associated with the procedure when performed under the usual aseptic conditions, and the results seem to be well worth while. It is, at any rate, a method of treatment which has received but little attention and merits more extensive trial than it has yet had.

DOES INSANITY EVER FOLLOW OPERATION?

The term "post-operative insanity" has become somewhat too prevalent and convenient. There are several objections to it aside from the obvious one, that is, that its existence as a clinical entity may be seriously doubted. In the first place, the term "insanity," expressing as it does a legal rather than a medical concept, should have an extremely limited use, being applied only to cases where a designation of an individual's mental status is required by a legal body to determine his responsibility or his social possibility.

Then, too, by including the term "post-operative" in this designation, we say that the mental disorder followed the operation and imply that it was a sequela of it. There are terms already in use covering practically all psychoses which will be found in such circumstances. For instance, if the trouble was the result of fatigue of the system as a whole, assisted by the condition which led to the operation and aggravated by the extra drain of the operation on the system we may describe it as an "infection exhaustion psychosis." If the psychosis was actually due to the trauma of the operation itself, as in a head operation, we may call it a "traumatic psychosis." If to drugs given before or after

the operation plus the narcosis at the time of operation, it would come under the head of "intoxication psychosis." If the mental disorder is found to be of neurotic origin, as will often prove to be the case, it is a psychoneurosis.

Dr. J. M. Aiken has made an investigation into cases of so-called "post-operative insanity" and reports his results in the *American Journal of the Medical Sciences* for May. He does not believe they occur as the result of the operation itself. He says:—

"Either sepsis, the administration of some drug, or poor judgment by the surgeon who operated on a patient ripe for mental or nervous collapse caused them. Of these three possible factors the latter is probably the most frequent ultimate cause for post-operative psychoses or neuroses."

Dr. Aiken thinks that these conditions were coincidental merely with the operation and would have occurred even in the absence of the latter. Even supposing them to have been the result of the operation, he finds in a majority of cases that they do not outweigh the benefits of the operation.

Let us then dispense with the term "post-operative insanity," if for no other reason than because it may come under the eyes of laymen and add one more prejudice against the surgeon's knife to the possible detriment of a patient who urgently requires operation. But to avoid the appearance of psychoses and neuroses after operation it would be well for surgeons to consult with alienists before operating on patients of manifestly neuropathic tendencies.

MASSACHUSETTS MEDICAL SOCIETY.

THE one hundred and thirty-fourth anniversary of the Massachusetts Medical Society was successfully observed at its annual meeting in Boston last week, of which the complete program was published in the issue of the *JOURNAL* for June 3. Between 600 and 700 Fellows were in attendance. The morning of Tuesday, June 8, was devoted to clinics and demonstrations at the several hospitals. On the afternoon of that day were held the meetings of the sections on medicine, surgery and on tuberculosis. The session of the section on medicine was devoted to a symposium on heart disease. On Tuesday even

ing at the Copley-Plaza Hotel, Dr. Joel E. Goldthwait delivered the Shattuck Lecture on "An Anatomic and Mechanistic Conception of Disease," the full text of which is published in this issue of the JOURNAL with editorial comment in another column. Following the lecture there was an informal reception to the president with music and refreshments.

The annual meeting of the society was held on the morning of Wednesday, June 9, and the papers constituted a symposium on preventable diseases from the standpoint of public health and preventive medicine. Following this program, Dr. Everett A. Bates of Springfield delivered the annual discourse at noon on "Some Perplexities in Modern Medicine," the complete text of which was published in last week's issue of the JOURNAL. The combined meeting of the sections of medicine and surgery, held on Wednesday afternoon at the Boston City Hospital, was devoted to a symposium on empyema. The complete text of all these papers, with full report of the discussion and other proceedings, will appear in subsequent issues of the JOURNAL.

The annual dinner was held at the Copley-Plaza Hotel on the evening of Wednesday, June 9, and was a thoroughly entertaining and successful occasion, attended by over 800 Fellows and guests.

The principal addresses were delivered by Lieutenant-Governor Grafton D. Cushing, Dean Edmund S. Rousmanière, Professor Charles H. Grandgent, and the Honorable William H. Taft. The following officers of the Society were re-elected for the ensuing year: President, Dr. Charles F. Withington; treasurer, Dr. Edward M. Buckingham; and secretary, Dr. Walter L. Burrage.

AN OPERATING ROOM ON WHEELS.

BEARING in mind the ancient adage concerning the parentage of invention, it is not surprising that the exigencies of the present war have called forth many examples of the ingenuity of the medical man. Several models of motor cars containing miniature operating rooms for use at the front have been devised. Their uses are chiefly to serve casualty clearing stations and to take care of cases of grave abdominal injury, head cases and severe wounds necessitating immediate operation. They are not to be used for

removable cases, and it is required of them primarily that they shall be capable of taking the surgeon and anesthetist to the place where they are wanted and provide them with all they require.

One of these cars, designed by Dr. G. H. Colt, of the Aberdeen Royal Infirmary, and now on exhibition in London, seems to be the latest word in ingenuity, convenience and compactness. It consists of two parts, a body and a cab, the former being roughly three times the size of the latter. The car as a whole is six feet, six inches wide, seven feet high, and the wheel base is eleven feet, six inches. The weight of the whole is $2\frac{1}{2}$ tons. The dimensions of the body which contains the operating room are 9 feet 6 inches, by 6 feet 6 inches. Besides the chauffeur, the car carries a surgeon, an assistant, an anesthetist and a nurse. It is capable of making a speed of about 20 miles an hour. The cost of the car itself is \$4350 and the surgical equipment costs about \$1000.

There are so many features worthy of comment about this car that space will not permit mention of half of them. Examples are a tail-board which is so devised that when it is closed the upper surface, over which the patient has been carried, is on the outside. All the boiling and sterilizing is done in the cab, so that some of the most bulky features of the usual operating room are eliminated. The dust is swabbed off the inner walls of the car with a dilute, antiseptic solution of glycerine.

CONSTRUCTION OF LOCAL TUBERCULOSIS HOSPITALS.

In the issue of the JOURNAL for May 13, we commented editorially on the Worrall tuberculosis hospital bill (House 2088), and pointed out the great undesirability of its passage. This bill was referred to the committee on public health, and, at a hearing before this committee, was opposed by Dr. Allan J. McLaughlin, state commissioner of health, on the ground that it was permissive rather than mandatory legislation and did not state specifically when the proposed hospitals should be built by the county commissioners. At the same time he declared himself in favor of a larger hospital unit for the care of tuberculous patients and apparently on the basis of his recommendation the public health

committee filed in the senate on May 25, a substitute measure providing for an investigation by the Massachusetts State Department of Health as to the advisability of establishing county or district hospitals for the care of tuberculosis patients exclusive of cities having 50,000 or more inhabitants. The bill provides that the health department shall report its findings to the next session of the general court.

It may probably be assumed that this substitute measure will effectually shelve the Worrall bill for the present session and by leaving in force the tuberculosis hospital law of 1911, requiring the establishment of local tuberculosis hospitals during the present year, will avoid the retrograde step whose undesirability and dangers we have previously indicated.

MEDICAL NOTES.

NEW YORK DEATH RATE.—The noteworthy feature in the weekly mortality report issued by Commissioner of Health Goldwater for the week ending June 5, 1915, is the saving of 88 lives that would have been lost had the death rate for the corresponding week of last year prevailed during the past week.

The rate for the first twenty-three weeks of 1915 is 14.44, as compared with 15.15 for the corresponding period of 1914.

Several of the infectious diseases show a slight increase, which, however, is offset by reductions in the death toll of other diseases of this group.

The greatest increase is seen under the heading of broncho-pneumonia.

THE ARMY MEDICAL SCHOOL GRADUATION.—The graduating exercises of the Army Medical School, Washington, D.C., were held on June 1. Diplomas were awarded to thirteen graduates. First Lieutenant Harry D. Offutt of Maryland was awarded the Hoff Memorial medal and First Lieutenant Raymond E. Scott, of Missouri, the Sternberg medal.

GIFT TO THE UNIVERSITY OF CALIFORNIA.—It is announced that an annual gift of \$1200 has been offered by a friend of the University of California in memory of Dr. Edith J. Claypole, research associate in the department of pathology, who died on March 26, 1915. This sum will be used to maintain the position which she held and to enable the continuance of the investigation which she had been making in regard to improved methods for immunization against and treatment of typhoid fever.

ASSOCIATION OF AMERICAN PHYSICIANS.—At the recent annual meeting of the Association of American Physicians, held in Washington, D. C., Dr. Henry Sewall of Denver, Colo., was elected president and Dr. George Dock of St. Louis, vice-president for the ensuing year.

AMERICAN NEUROLOGICAL ASSOCIATION.—At the recent annual meeting of the American Neurological Association, held in New York City, Dr. Llewellys F. Barker was elected president for the ensuing year.

GIFT TO INDIANA UNIVERSITY.—It is announced that the University of Indiana has received from Dr. Luther Dana Waterman of Indianapolis, emeritus professor in the Indiana University School of Medicine, a gift of \$100,000, subject to an annuity during his lifetime and on condition that the University shall appropriate an amount equal to the income from the fund. The entire proceeds are to be devoted to scientific research.

EUROPEAN WAR NOTES.—The recent entrance of several more European cities into the zone of warfare gives additional interest to the following table of comparative death rates from diphtheria in times of peace before and after the introduction of antitoxin in its treatment:—

Place.	BEFORE ANTITOXIN. Death Rate Per 10,000 Pop. 1881 to 1890.	SINCE ANTITOXIN. Death Rate Per 10,000 Pop. 1896 to 1910.
Boston	13.7	4.7
New York	16.6	5.27
Philadelphia	11.2	6.7
Chicago	15.4	3.76
Berlin	14.3	2.6
Vienna	6.1	2.4
London	4.1	2.7
Paris	8.1	1.2
Edinburgh	4.2	1.9
Montreal	14.5	4.2
Toronto	9.8	6.3
Rio de Janeiro	2.3	0.5
Brussels	1.1	1.0
Amsterdam	9.5	1.26
Copenhagen	8.4	1.5
Moscow	7.1	5.3
Petrograd	8.3	7.5
Budapest	10.4	2.5
Trieste	12.9	3.2
Milan	9.5	2.7
Turin	5.8	1.2

This table was recently contributed by Dr. Edwin H. Place of Boston in a letter to the daily press on the importance of antitoxin treatment of the disease.

Considerable professional interest attaches to the apparently serious illness of King Constantine of Greece. It is reported that following an attack of influenza, the king recently developed an empyema. On June 5 Dr. von Eiselsberg of Vienna, who had been summoned in consultation, resected a portion of the king's tenth left rib. It is said that pus had been found in the left pleural cavity by aspiration as long ago as May 15. On the day following the operation the

bulletin stated that the king's temperature was 104.8, his pulse 140 and respiration 39. It is believed, however, that these represent the normal septic reaction after operation, and the king's condition is not as yet critical. On June 13, it was reported that the king's temperature was normal and his condition definitely improving.

Report from Nish, Serbia, by way of London, on May 28, states that the Serbian government has issued a call for forty additional American physicians to assist in the suppression of typhus fever and the medical care of the population. There are at present sixteen American physicians in Serbia with Dr. Richard P. Strong and twenty-five with the American Red Cross.

On June 12 the totals of the principal American relief funds for the European war reached the following amounts:—

	N. Y.	N. E.
Belgian Fund		\$262,433.90
Polish Fund	\$63,513.00	46,843.59
Secours National	79,249.44	
Jewish Fund		62,909.52

On June 13 a unit of 32 surgeons and 75 nurses left Chicago, and on June 15 sailed from New York for England to serve with the British Royal Army Medical Corps.

PREVALENCE OF MENINGITIS, POLIOMYELITIS AND SPOTTED FEVER.—In the weekly report of the United States Public Health Service for May 28, it is noted that during the month of April, 38 new cases of cerebrospinal meningitis were reported in Virginia and 18 in Ohio. During the same month there were 23 cases of poliomyelitis in Virginia and 6 in Ohio. Fourteen human cases of Rocky Mountain spotted fever were reported during April in Montana.

TYPHUS FEVER IN MEXICO.—Report from Washington, D.C., on June 8, states that typhus fever is prevalent in Monterey, Mexico, where there is extensive distress among the population. The number of cases is not stated.

"The Red Cross is despatching shortly two additional cars of corn to Monterey. On the *Moro Castle* the Red Cross shipped on June 10 twenty-five cases of drugs and hospital supplies to Consul Canada at Vera Cruz, to be forwarded to Spanish, American and French hospitals in Mexico City. These hospitals are crowded and in great need."

LONDON DEATH RATES IN APRIL.—Statistics recently published show that the total death rate of London in April, 1915, was 19.6 per thousand inhabitants living. Among the several districts and boroughs the highest rate was 27.7 in the precincts of the old city, and the lowest was 12.8 in Lewisham, an open residential region on the south.

SHIPMENT OF RED CROSS SUPPLIES TO SERBIA.—Report from New York on June 8 states that on that day the American Red Cross shipped aboard the steamship *Joannina* to the American consul at the Piræus, Greece, ten automobile trucks for the use of the American Red Cross Sanitary Commission in Serbia.

The shipment also includes eighty-nine tents and forty-two cases of hospital garments, hospital supplies and miscellaneous clothing for the Serbian Red Cross and the American Red Cross hospital units in Belgrade.

TYPHOID FEVER IN ASIA MINOR.—Report from Constantinople by way of Athens states that typhoid fever is now extensively prevalent among the troops and the civilian population in Asia Minor. It is reported that seventy-five physicians have already died there of this disease.

THE SECOND HARVARD SURGICAL UNIT.—It is announced that the second Harvard surgical unit, whose organization we have noted in previous issues of the *JOURNAL*, will sail from New York on June 22, aboard the steamer *Noordam* for Falmouth, Eng., for six months' service in British or French hospitals. The expedition consists of 32 surgeons and 75 nurses, the majority of whom have volunteered for the entire period of service. The personnel of the physicians and surgeons composing this unit is as follows:—

Dr. Edward H. Nichols, surgeon to Boston City Hospital, surgeon in charge of the unit.

Dr. Charles Allen Porter, visiting surgeon to Massachusetts General Hospital.

Dr. Franklin Greene Balch, visiting surgeon to Massachusetts General Hospital.

Dr. Alexander Quaekenboss, visiting ophthalmologist to Massachusetts Charitable Eye and Ear Infirmary.

Dr. Harris Peyton Mosher, visiting surgeon to Throat Department, Massachusetts General Hospital.

Dr. Roger Irving Lee, professor of hygiene, Harvard University and visiting physician to Massachusetts General Hospital.

Dr. William E. Faulkner, assistant visiting surgeon to Boston City Hospital.

Dr. Robert H. Vose, surgeon to Boston Dispensary.

Dr. Allen Greenwood, ophthalmic surgeon to Boston City Hospital.

Dr. Daniel B. Reardon, Quincy, visiting physician to Quincy City Hospital.

Dr. Nathaniel S. Hunting, Quincy, visiting surgeon to Quincy City Hospital.

Dr. Walter M. Lacey, Chyenne, Wyoming, Harvard Medical School, class of 1912.

Dr. Pierce P. McGinn, Somerville, Tufts Medical School, class of 1912.

Dr. John Jenks Thomas, professor of Neurology at Tufts Medical School and visiting neurologist to Boston City Hospital.

Dr. Harry Fairbanks Hartwell, visiting surgeon to out-patient department, Massachusetts General Hospital.

Dr. Pierce Henry Leavitt, Boston City Hospital, Harvard Medical School, class of 1914.

Dr. Charles Wesley Bressler, Harvard Medical School.

Dr. William E. Hunter, Harvard Medical School.

Dr. Philip Duncan Wilson, Harvard Medical School, class of 1914, house surgeon, Massachusetts General Hospital.

Dr. George Warren Bachman, Boston City Hospital.

Dr. Walter J. Dodd, instructor in Roentgenology at Harvard Medical School, x-ray department, Massachusetts General Hospital.

Dr. George Loring Tobey, Jr., assistant visiting surgeon to Massachusetts Charitable Eye and Ear Infirmary.

Dr. Frank Whipple Snow, Newburyport, Harvard Medical School, class of 1902.

Dr. Varazstad H. Kazanjian, demonstrator of prosthetic dentistry, Harvard Dental School.

Dr. Byron B. Stookey, Marine Hospital, Chelsea.

Dr. Harold M. Frost, Boston City Hospital.

Dr. Russell P. Borden, Boston City Hospital.

Dr. Harold M. Goodwin, Boston City Hospital.

Dr. Joseph C. Horan, Harvard Medical School, class of 1915.

Dr. Frederick A. Coller, Ambulance Hospital, Paris.

Dr. Robert R. Sattler, Harvard Medical School, class of 1918.

Dr. E. B. Allen, Harvard Medical School.

Dr. Albert A. Barrows, Providence.

Dr. E. P. Laskey, Haverhill, Mass.

BOSTON AND NEW ENGLAND.

THE CAMPAIGN AGAINST CANCER IN NEW ENGLAND.—The following statement is issued by the press service of the American Society for the Control of Cancer:—

"The New England states generally show a higher death rate from cancer than any other group of states. This does not mean that New England people are more susceptible to this disease. Cancer is a disease of later adult life and it is well known that in parts of New England there are more old people proportionately to the population than in many other regions. Nevertheless, the death rates recently published by the United States Census Bureau have stimulated much activity in these states in the educational campaign for the control of malignant disease.

What are the facts upon which this movement is based? According to the report of the Census Bureau, in 1913 there were 49,928 deaths from cancer in the registration area of the United States, corresponding to a death rate of 78.9 per 100,000 of the population. All the New England states have individual cancer death

rates much higher than this. Connecticut's rate, which is the lowest of any of the New England states, was 85.1. Vermont's rate was the highest with 111.7, while the rates of the other states were correspondingly high, Maine having a rate of 107.5, New Hampshire, 104.4, Massachusetts, 101.4 and Rhode Island, 93.3. When these figures are compared with those of Kentucky, with a rate of 48, they seem indeed very high. They mean that 6,817 people died in 1913 in New England from cancer. But it does not necessarily follow that cancer is more common in New England than elsewhere. The Census Bureau attributes the high cancer death rates in certain districts to the relatively high age distribution of the population and the negligible amount of immigration. Translated into everyday terms this means that in New England the proportion of people over 40 years of age, or at the cancer age, to those under 40, and so less liable to cancer, is greater than in other places. Yet there is no doubt that the cancer death rate in New England as well as in other parts of the country is much higher than it ought to be. Without question a large percentage of cancer deaths can be prevented by early recognition of the symptoms and prompt recourse to competent surgical advice and treatment. Cancer is not a hopeless, incurable affection, as so many people wrongly believe. Those who know the facts believe that if the public can be properly educated in regard to the early signs of the disease and will act on this knowledge, the present mortality should be reduced at least one-half, and perhaps two-thirds.

That New England is awake to this opportunity of saving lives is evident from the activity in several states. Vermont medical men have become so concerned over the high cancer death rate of their state that they recently held a series of meetings on the subject. The New Hampshire State Board of Health has recently published sound advice in its *Bulletin*. In Maine an active committee of the State Medical Society is arranging public lectures and causing the publication of instructive articles in the newspapers. Massachusetts has a well organized branch of the American Society for the Control of Cancer, with headquarters in Boston. The Vermont State Medical Society arranged a series of public meetings to spread the bad news of the high cancer death rate and the good news of the hope of controlling the disease by earlier recognition and prompt surgical treatment. Morning, afternoon and evening meetings were held on Tuesday, Wednesday, Thursday and Friday, June 8th to 11th, at Rutland, Burlington, Montpelier and St. Johnsbury. The Vermont State Board of Health sent its Secretary, Dr. Charles F. Dalton, to address each of these meetings and the American Society for the Control of Cancer was represented by Dr. Francis Carter Wood, Director of Cancer Research at Columbia University, New York City.

and by Dr. J. M. Wainwright, Chairman of the Cancer Committee of the Pennsylvania State Medical Society.

SCARLET FEVER EPIDEMIC IN NEEDHAM.—An outbreak of scarlet fever has been reported in Needham Heights and North Needham. The public schools and churches have been closed and residents have been requested to refrain from attending moving picture theatres and other gatherings. A total of 17 cases has occurred. The source of the infection is not known.

CONCORD DEACONESS HOSPITAL.—It is announced that the Deaconess Hospital at Concord, Mass., has received from an anonymous donor a gift of a private ward building and nurses' home to be built in the rear of the present hospital and completed in the coming fall. The building will be 70 by 30 feet in ground area and will contain eight private rooms on the first floor.

HOSPITAL BEQUESTS.—The will of the late John E. Martin, of Portland, Me., which was filed for probate in that city on June 7, contains bequests of \$50,000 each to the Maine General Hospital and the Maine Eye and Ear Infirmary.

The will of the late Abby Wales Turner, who died in Randolph, Mass., on May 13, was filed on June 8 for probate at Dedham, Mass. Among many public charitable bequests it contains legacies of \$1,000 each to the Sarah Fuller Home for Deaf Children, the New England Hospital for Women and Children and the Brookline Free Hospital for Women.

QUARANTINE FOR FOOT AND MOUTH DISEASE.—Report from Brighton, Mass., on June 8 states that the federal quarantine is still in force over the local stockyards. This quarantine was established in November, 1914, and is not likely to be lifted for several months, although no new cases of the disease have been reported in Massachusetts since May, 1915. Cattle are now being brought, however, to the Brighton stockyards from Maine, New Hampshire and Vermont for immediate slaughter.

EXHIBIT BY STATE BOARD OF INSANITY.—During the past week there was held at the Massachusetts State House by the State Board of Insanity an exhibit of brushes, brooms, boots, hats, rugs and clothing made by inmates of the 13 institutions under the control of the Board. This exhibit which has been announced in previous issues of the JOURNAL, represents not only a therapeutic, but an economic value.

"In several of the hospitals the patients make all of the furniture; in one, all of the straw hats used; in most, the patients are making all the rugs, brooms, brushes and mattresses, and in one they knit by machinery all of the stockings

and sweaters and make all of the clothing of the patients. This is not uniform, but of great variety.

"Today a majority of the patients are employed in useful work—a contrast from former years when they were sitting on benches in the wards with absolutely no occupations. In cases of idiocy and dementia the patients unraveled stockings and pick over mattresses. They work from one to eight hours per day."

SEIZURE OF MILK BOTTLES. Report from Worcester, Mass., states that on June 7 the local commissioner of weights and measures made a seizure of 50,000 paraffined paper milk bottles consigned to a local creamery by a Wisconsin manufacturer. The grounds for the seizure are technical, since the bottles, though properly stamped for use in Wisconsin, were not stamped in accordance with the requirements of the Massachusetts statute.

DEPORTATION OF UNDESIRABLE ALIENS.—The monthly bulletin of the Massachusetts State Department of Health for March, 1915, contains the following important statement relative to the possibility of deportation of certain undesirable aliens within three years of their arrival in this country:—

"It is not generally known that aliens who are suffering from a dangerous contagious disease, insane persons and others who have become a public charge may be deported to Europe at any time within three years after landing, provided their condition is due to causes prior to landing. Lack of knowledge of this fact results in some communities assuming financial burdens which are entirely needless.

"Dr. Allan J. McLaughlin, the Commissioner of Health, has issued a circular letter to district health officers calling their attention to the immigration law and directing them to advise local officials in their districts to avail themselves thereof.

"Aliens suffering from tuberculosis are not admitted to the United States, but many aliens certified as having poor physique, flat chest, underweight for age, anemia and other rather indefinite defects, are admitted. These aliens are excellent material for tuberculosis if they are exposed to slum conditions.

"Some time ago Dr. McLaughlin requested the Commissioner General of Immigration to furnish lists of aliens, destined for Massachusetts cities and towns, having the defects mentioned above. On April 8, Mr. J. B. Densmore, Acting Secretary of the Department of Labor, came from Washington and conferred with Dr. McLaughlin relative to this matter. He agreed to cooperate with the State Department of Health in so far as his appropriation will permit. When these lists are received the Commissioner of Health will then notify the local boards of health, and the tuberculosis dispensary will be able either to prevent the develop-

ment of tuberculosis or to arrange for deportation of the alien at the earliest possible moment if the disease should develop."

NEWTON HOSPITAL TRAINING SCHOOL.—The annual graduation exercises of the Newton (Mass.) Hospital Training School were held in that city on June 2. Diplomas were awarded to a class of 19 pupil candidates.

LONG ISLAND HOSPITAL TRAINING SCHOOL.—The annual graduation exercises of the Long Island Hospital Training School for Nurses were held at that institution on June 3. The principal addresses were made by Dr. Allan J. McLaughlin and Dr. Malcolm Seymour. Diplomas were presented to a class of 17 pupil candidates.

MASSACHUSETTS STATE NURSES' ASSOCIATION.—The twelfth annual meeting of the Massachusetts State Nurses' Association was held in Boston on Saturday, June 5. At the morning session the principal subject of discussion was that of the registration of nurses, and the Massachusetts State League of Nursing Education held a joint session on this subject with the Nurses' Association. At the afternoon session a number of short papers were presented and the following officers were elected for the ensuing year:—

President, Miss Sara E. Parsons of the Massachusetts General Hospital; vice presidents, Miss Mary M. Riddle of the Newton Hospital and Miss Lucia Jacquith of the Worcester Memorial Hospital; recording secretary, Mrs. Jane Barker Homer; treasurer, Miss Esther Dart of the Stillman Infirmary, and corresponding secretary, Miss Charlotte W. Dana of the Boston Lying-in Hospital.

The officers elected by the State League of Nursing Education were the following:—

President, Miss Emma E. Nichols, Boston City Hospital; vice president, Miss Bertha Allen, Newton Hospital; secretary and treasurer, Mrs. Alice H. Flash, Massachusetts Homeopathic Hospital.

In the evening was held the second annual dinner of the Massachusetts Red Cross Nurses under the presidency of Dr. Laura A. C. Hughes. The speakers at this dinner were Surgeon General Frank P. Williams, representing Governor Walsh; Mgr. Splaine; Emergency Secretary Louisa Loring of the Massachusetts Red Cross, Miss Catherine P. Loring, and Miss Mabelle Welch, night superintendent of nurses at the Peter Bent Brigham Hospital, who recently returned from six months' service at the Red Cross hospital at Paignton, South Devon, England.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending June 9, 1915: Diphtheria, 77 cases, of which four were non-resident; scarlatina, 120 cases, of which 18 were non-resident; typhoid fever,

seven cases; measles, 236 cases, of which two were non-resident; tuberculosis, 66 cases, of which four were non-resident.

The death rate of the reported deaths for the week was 15.11.

Massachusetts Medical Society.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY.

MEMORIAL RESOLUTION FOR DR. KELLY.—Whereas, God in his infinite wisdom has seen fit to end the earthly life of our former president, Seth Wight Kelly of Woburn:

Resolved: That the members of this Society deeply deplore the loss of their highly esteemed fellow member, who was one of the early members of this Society, always interested and faithful to its obligations and so adding greatly to its efficiency and success. We wish to express our heartfelt appreciation of his efforts and of his many virtues. He was a gentleman of the old school in ideals and a true New Englander of the finest type. As a physician he was learned, proficient, honored and beloved.

Resolved: That a copy of these resolutions be sent to his bereaved family, another to the BOSTON MEDICAL AND SURGICAL JOURNAL, and another be spread on the records of our district society.

Miscellany.

THE CULTIVATION OF DRUG PLANTS IN THE UNITED STATES.

In a recent bulletin (No. 663), "Drug Plants Under Cultivation," the United States Department of Agriculture warns farmers that in order to have the cultivation of drug plants financially successful in this country, the introduction of improved methods and the extensive use of machinery is probably necessary. Under these circumstances the natural tendency will be to increase the production in the interest of economy. The demand for many drug plants, however, is so limited that if large areas are brought under cultivation there is considerable danger of overproduction. Prospective growers are urged, therefore, to acquaint themselves with market conditions before investing any considerable sum of money in this way.

On the other hand, the number of drug plants which may be grown in the United States is large. Many native medicinal plants which are found in their wild state in a few sections have been successfully cultivated in situations far beyond their natural range. In suit-

able soil and under favorable weather conditions the following plants have done well under cultivation in numerous places in the Central and Eastern states and, if the difference in climatic conditions is not too great, will probably be suitable in other regions: anise, belladonna, burdock, caraway, catnip, camomile, conium, coriander, digitalis, dill, echinacea, elecampane, fennel, henbane, horehound, pennyroyal, sage, stramonium, tansy, thyme.

The bulletin already mentioned contains specific instructions for the cultivation of each of these plants and of a number of others. In general, it may be said that wild medicinal plants are much more difficult to propagate from seeds than species commonly grown in gardens. Moreover, in growing medicinal plants from seed it is much better to start the plants in a greenhouse or hotbed than to sow the seed directly in the field. Under any circumstances, the preparation of the soil is of prime importance. A seed bed prepared by thoroughly mixing equal parts of garden soil, leaf mold, well rotted manure, and clean sand will be suitable for the germination of most seed. The heavier the soil the greater the quantity of seed should be.

Drug plants grown for their roots are usually harvested in the fall or early in the spring, while the plant is still dormant. Roots collected during the growing season often shrink excessively in drying, which in all cases must be thoroughly done. Large roots are usually split or sliced, spread in thin layers on clean floors, and stirred or turned frequently. The process of drying may take several weeks, although the time can be reduced by the use of artificial heat. Good ventilation is an essential in order that the moisture driven off from the roots may be allowed to escape.

Leaves and herbs are usually harvested when the plants are in flower. Picking by hand in the field is a slow process, and the entire plant is, therefore, often cut and the leaves stripped after the plants have been brought in. Flowers may be gathered either by hand, which is a laborious method, or by devices similar to a cranberry scoop or a seed stripper.

In addition to the care and knowledge needed for the production of these medicinal plants, the grower must be familiar with market conditions. In many cases there is no local market for the product, and the grower should then send samples to dealers in crude drugs or the manufacturers of medicinal preparations in order to obtain a price for his crop. Some growers who have been careful to maintain a very high quality in their product have succeeded in building up a trade at a price a little above the prevailing market quotations. It is also possible to secure a contract for the sale of the entire crop in advance, thus insuring a definite market. In general, the bulletin says, the growing of drug plants in this country seems to be more suitable to well equipped cultivators who devote them-

selves entirely to it than to the general farmer who looks upon it only as a minor source of income.

Correspondence.

THE CLEAN MILK BILL.

CITY HALL, WEST NEWTON, JUNE 4, 1915.

Mr. Editor: I have been much interested in the correspondence in regard to the so-called Clean Milk Bill and the comments thereon which have appeared in the JOURNAL and I cannot see that the veto of the bill has been such a blow to the cause of clean milk.

It has always seemed to me that bill was unnecessary, for Chapter 744 of the Acts of 1914 gives local boards of health all the power needed to insure clean milk: if the local boards do not choose to exercise that power it is their own fault or that of the communities which they serve.

Under the provisions of Chapter 744 no one, be he producer, contractor or storekeeper, can sell milk in any city or town in Massachusetts until every dairy from which the milk is derived has been granted by the local board of health, a permit stating that it conforms to local requirements.

The Attorney-General has ruled that the local board is the sole judge as to whether it will or will not issue this permit. Further than this the local board has the power to revoke any permit once granted if, in its opinion, the conditions under which it was issued have been violated. If a permit is revoked a notice must be sent to the State Department of Health, which in turn must notify other communities of the fact.

As Dr. Luce truly says in his letter in the JOURNAL of June 3d, a dairyman will very quickly clean up if he finds that he is going to lose his market for his product.

As for the experience of the Winthrop Board of Health, referred to in another article, it could have asked the contractor to specify which of his 1500 dairies he would use for supplying Winthrop. Having this list, the dairies on it could be inspected and, as by local ordinance, a dealer can be prohibited from changing his source of supply without previously notifying the local board, the situation would be under control. If he refused to give this list his permit for selling any milk in Winthrop could have been revoked. While this would perhaps have been an extreme measure, it was entirely within the power of the board, as I understand the law.

It is difficult for the board of a small community to do out of state inspection and this branch of the work might well be delegated to the State Department of Health, but within the state the local boards should control the work.

Where milk comes into two or more neighboring communities from the same districts these communities can pool their issues, the inspector of one doing the work for both in a given section, thus preventing duplication. Each community could appoint the inspector of the other its inspector for this work.

In closing permit me to say that when the public comes to realize that clean milk deserves a higher price than ordinary milk and is willing to pay for it, the producer will have more encouragement to give it what it wishes.

At present the man who tries to live up to requirements and produce clean milk sees his neighbor who has a dirty dairy get the same price for his dirty milk that he does for his clean milk. Naturally he becomes discouraged and ceases to care.

FRANCIS GEO. CURTIS, M.D.,
Chairman, Newton Board of Health

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING JUNE 5, 1915.

CONTRIBUTIONS.

Dr. Arthur G. Larkin, New York, N. Y.....	\$ 10.00
Dr. John A. Hawkins, Pittsburg, Pa.....	10.00
Medical Society of the Co. of Greene, Catskill, N. Y.	15.00
Wilson County Medical Society, Fredonia, Kansas	15.00
Dr. Robert C. Davis, Johnstown, Pa.....	5.00
Dr. Emery Marvel, Atlantic City, N. J.....	25.00
Dr. G. J. Hagens, Chicago, Ill.....	15.00
Medical Society of the County of Westchester, (Second contribution), White Plains, N. Y.	2.50
Rockland County Medical Society, Nyack, N. Y.	28.00
San Luis Valley Medical Society, Alamosa, Colorado	25.00

Receipts for the week ending June 5.....\$ 150.50
Previously reported receipts.....7008.50

Total receipts.....\$7159.00
Previously reported disbursements:
1625 standard boxes of food @ \$2.20..\$3575.00
1274 standard boxes of food @ \$2.30.. 2930.00
213 standard boxes of food @ \$2.28.. 485.64

Total disbursements\$6990.84

Balance\$168.16

F. F. SIMPSON, M.D., *Treasurer*,
7048 Jenkins Arcade Bldg.,
Pittsburg, Pa.

NOTICES.

THE PSYCHOPATHIC HOSPITAL, 74 Fenwood Road, Boston. Third annual conference on the Medical and Social Work of the Psychopathic Hospital, Boston, Friday, June 19, 1915, 4 to 6 P.M., under the auspices of the Trustees of the Boston State Hospital.

(Chestnut Hill or South Huntington Avenue cars—alight at Fenwood Road.)

Program 4 to 6 P.M. President Henry Lefavour, Chairman of the Board of Trustees, will preside.

1. "The Intensive Group of Psychopathic Social Service Cases," Mary C. Jarrett.

2. "Routine Mental Tests as the Proper Basis of Practical Measures in Social Service," Helen M. Wright.

3. "Conclusions from Repeated Mental Tests of Certain Psychopathic Subjects," J. H. Beasley.

4. "The Multiple Choice Method of Mental Examination in Estimating Candidates for Employment," C. Rossy.

5. "Problems Suggested for a Review of Faradic Sensory Threshold Work with Psychopathic Subjects," G. Philip Grabfield.

6. "Analysis of Recoveries at the Psychopathic Hospital: III. A Third Series of One Hundred Cases, Considered Especially from the After-Care Standpoint," Frankwood E. Williams.

7. "Massage in Hypertensive and Hypotensive Cases," J. P. Krasnye.

8. "Spinal Fluid Sugar in Psychopathic Subjects," H. C. Solomon and J. B. Rieger.

9. (Presented in brief abstract.) "Gold Sol Reaction."

(a) "The Clinical Status of the Method: Spinal Fluid Determinations in 500 Cases," H. C. Solomon.

(b) "Is the Cerebrospinal Syphilis Gold Sol Reaction in Some Sense a *Forme Fruste* of the Paretic Reaction?"

(c) "The Bacteriology and the Gold Sol Reaction of Post-Mortem Cerebrospinal Fluids," Myrtelle M. Canavan and E. S. Welles.

(d) "Gold Sol Reactions in Miscellaneous Body Fluids," E. S. Welles.

10. "The Margin of Error in Psychopathic Hospital Diagnoses: Second Study, 1914," E. E. Southard.

The following are presented by title or in the form of exhibits or charts, on view in the out-patient department and in the laboratories, 3 to 4 P.M.

11. "Variations in the Sensory Faradic Threshold of Psychopathic Subjects: Fifth Study—Psychoneuroses," G. Philip Grabfield.

12. "Effects of Treatment of Alcoholic Conditions at the Psychopathic Hospital and at General Hospitals," Donald Gregg.

13. "Photographs and Specimens from a Tumor of the Basis Cerebri," Donald J. MacPherson.

14. "Fatty Changes in Purkinje Cells of Cerebellum in Toxic Psychoses," Egbert W. Fell.

15. Note on the Frequency of Surgical Conditions and Operations in Hysterical Subjects," A. G. Gould.

NOTE.—The Out-Patient Department and the Laboratories will be open for inspection before the meeting, 3 to 4 P.M., and will contain certain exhibits and demonstrations.

The more social part of the program has been put before the more medical part for the benefit of those who come with special interests but limited time.

HARVARD MEDICAL ALUMNI ASSOCIATION.

An informal table d'hôte luncheon will be held by the Harvard Medical Alumni Association on June 23 at the University Club in San Francisco. Dr. William P. Lucas of the University of California Medical School and Mr. William Thomas, president of the San Francisco Harvard Club will be in charge.

APPOINTMENTS.

BOSTON MILK AND BABY HYGIENE ASSOCIATION.—

At a meeting of the trustees of the Boston Milk and Baby Hygiene Association on June 2, Dr. J. Herbert Young of Newton, Mass., was unanimously appointed medical director to succeed Dr. Arthur A. Howard of Boston who has recently resigned.

JOHNS HOPKINS HOSPITAL.—Dr. Roscoe W. Hall has been appointed resident physician of the Phipps Clinic of the Johns Hopkins Hospital, in succession to Dr. David K. Henderson who has been appointed superintendent of the Royal Asylum at Glasgow, Scotland.

STANFORD UNIVERSITY MEDICAL SCHOOL.—Dr. Charles Harvey Bailey has been appointed assistant professor of pathology. Dr. Henry Augustus Stephenson, assistant professor of obstetrics and gynecology. Dr. George DeForest Barnett instructor in medicine and Dr. Jean Redman Oliver instructor in pathology.

UNIVERSITY OF CALIFORNIA.—Dr. Henry Albert Mattill has recently been appointed assistant professor of nutrition.

UNIVERSITY OF SHEFFIELD.—Dr. J. Sholto C. Douglas, formerly lecturer on pathology in the University of Manchester, England, has been appointed Joseph Hunter professor of pathology in the University of Sheffield.

RECENT DEATH.

DR. JOHN HILDRETH MCCOLLOM, formerly superintendent of the Boston City Hospital, died at his home, 29 Ivy Street, Boston, June 14, aged 72 years. He joined The Massachusetts Medical Society in 1869.

The Boston Medical and Surgical Journal

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Address

WATER DRINKING.*

WHEN SHALL WE DRINK WATER?

MAY WE TAKE IT WITH MEALS?

BY ELBRIDGE G. CUTLER, M.D., BOSTON.

It seems hardly necessary to propose the above questions before the members of this society, but as I have encountered even recently so much confusion on these points, I am glad of the opportunity to speak through you to a wider audience.

Let me begin by recalling a few postulates which we all accept:

Water is a prime necessity of life.

It enters into the human food so largely that it is estimated that fully five-sixths of the food is water in its simple form or partly in chemical combinations.

The human body likewise consists of water in about the proportion of two-thirds of its weight, so that a 150-pound man is 100 pounds water and 50 pounds solid substance. Taking the different portions of the body, it is striking to find that *muscle*, which accomplishes so much physical work, is 75% water; the *brain*, the chief director of the body forces, is 85 to 90% water; the *blood*, source of all nutrition, is over 90% water; while *bone*, whose tensile strength is more powerful than ordinary pine lumber, may con-

tain over 40% of water; and finally, *saliva*, which is able to convert the starch of cereals, vegetables, and fruits into maltose, contains 99.5% of water, and its efficiency is further increased by further dilution.

In the human organism water is essential to digestion, assimilation, metabolism and reproduction. In fact, no vital process occurs in the absence of water, nor can life be long maintained without a continuance of its supply.

These truths have, most of them, been well recognized by physicians for years and they have encouraged the free drinking of water, but not at the best time. Mankind, when following the normal inclination, takes enough water to quench the natural thirst and at the time most convenient, which is usually at the meals.

Though many persons are accustomed to drink considerable quantities of water with their meals with no apparent ill effects, the statement has been, and still continues to be, made that water drunk with meals is injurious. This assertion appears to have rested solely on a priori reasoning, and not on experiment, and it is the common belief of many of the medical profession today as it is of the general public. It is commonly stated that water should never be drunk with meals, but an hour after the meal has been eaten. It is stated that water drunk while eating "artificially moistens the food, thus hindering the normal and healthful flow of saliva and the other digestive juices; secondly, it dilutes the various juices to an abnormal extent; and thirdly, it washes the food elements through the stomach and into the intestines before they have had time to become thoroughly liquefied and

*Read before the Boston Society for Medical Improvement, March 22, 1915.

digested. The effects of this upon the welfare of the whole organism can only be described as direful." (Carrington, 1908¹.) There is no proof that such effects follow the drinking of water with meals, and on the other hand, certain experiments show absolutely that these effects do not follow.

Let us consider the effects on the different secretions of drinking freely of water with meals.

One of the first to attack this question experimentally was Paul Leconte,² working in the laboratory of biological chemistry at the Institut Carnot, at Louvain. Though Colin had determined in 1884 that water taken during digestion in the horse did not disturb the normal course in the least, Leconte found that in the dog, water taken in the course of digestion was quite inoffensive and he assumed that it would be found so in the human subject.

The man, however, who has made the subject of water drinking peculiarly his own through his numerous experiments and published papers is Philip B. Hawk of Philadelphia, professor of biological chemistry in the University of Pennsylvania, and it is to him that constant reference is made in this paper. Indeed, as you will see later, the communication is essentially a presentation of his views.

Saliva. All agree that water should not be used to moisten the food in the mouth. This should be accomplished by proper mastication and the natural insalivation which follows in the healthy subject. No water should be taken into the mouth till this chewing, insalivation and swallowing have been accomplished. Taken in this way, water has no effect on the secretion of saliva.

Gastric Juice. Pavlov,³ experimenting on dogs with divided vagi, showed that water stimulates the flow of gastric juice if comparatively large amounts—400-500 c.c.—are ingested, but that with small amounts—100-150 c.c.—in half the cases observed, not the least trace of secretion could be found. Only prolonged and widely spread contact of the water with the gastric mucous membrane gave a constant and positive result. Since the vagi were divided, the effect of the water must have been that of a chemical excitant.

Foster and Lambert⁴ in experiments on the influence of water when taken with food, showed that water causes not only a more voluminous secretion, but also a more acid secretion.

Bergem, Rehfuss and Hawk⁵ find as follows:

1. Water, either cold—10.5° C.—or warm—50° C.—is a very strong gastric stimulant.
2. In the average normal individual, water produces fully as great a stimulation (as measured by acidity and enzyme values) as does an Ewald test meal, and the acidity follows a similar type of curve. A simple water meal might, therefore, be substituted in many instances for the Ewald meal, and has the additional advantage of demonstrating any food remnants.

Bile and Pancreatic Juice. Pavlov⁶ proved that water acts as an excitant of the pancreatic juice. When 150 c.c. of water is introduced into the stomach of a dog, the pancreas begins to secrete, or its flow increases, within a few minutes after the water has entered the stomach. Since this amount of water is insufficient to excite the flow of gastric juice, the secretion of pancreatic juice is not secondary to a secretion of the gastric juice, but is a direct result of the presence of water in the stomach.

In dogs with pancreatic fistulae, it has been shown that following chemical and psychical stimuli, there is a parallelism between the secretion of gastric juice and pancreatic juice. All kinds of acids are powerful excitants of pancreatic secretion. Large amounts of acid chyme pouring into the small intestine cause increased pancreatic secretion with increased flow of pancreatic juice. It has been shown that the biliary secretion is also increased, thus augmenting the digestive properties. Thus the increased acidity of the gastric contents resulting from the stimulating action of water causes a far more active digestive juice to be poured out upon the chyme when it reaches the intestine. Further, Hawk⁷ has shown increased pancreatic activity to follow water drinking with meals, the index being the output of fecal amylase.

Intestinal Juice. Under ordinary circumstances the intestinal juice is secreted only by those portions of the intestines with which the food is in contact (Hawk). Mechanical stimulation produces a secretion which is shown to be comparatively poor in enzymes and contains largely salt and water. When poured out upon food the intestinal juice is rich in enterokinase, but the pancreatic enzymes are even greater stimuli than food in this respect (Hawk).

The Effect of Dilution upon Enzyme Activity. Hawk points out that enzyme reactions, like other chemical reactions, are reversible. They do not proceed to completion unless the products of the reaction are removed as soon as formed. In a concentrated solution, the point at which the reaction comes to a standstill is reached sooner than in a dilute one, and in many instances the equilibrium of a reaction mixture may be disturbed by dilution; the reaction is forced toward completion if water is added. In the light of this fact the increased activity of gastric juice that has been observed under the influence of water may be due to the effect of dilution fully as much as to the increased acidity that accompanies it (Hawk).

The Rapidity of the Passage of Food as Affected by Water. VonMering's⁸ experiments show that as soon as water is introduced into the stomach, it begins to pass into the intestine, being forced out in a series of spurts by the contractions of the stomach. Within a comparatively short time, practically all the water can be recovered in this way through an artificial duodenal fistula, none or very little having been

absorbed in the stomach. For example, in a large dog with a fistula in the duodenum, 500 c.c. of water were given through the mouth. Within 25 minutes, 495 c.c. had been forced out of the stomach through the duodenal fistula. This result is not true for all liquids; alcohol, for example, is absorbed readily.

Hawk,⁹ in a series of beautiful and convincing experiments, arrived at the conclusion that copious water drinking caused an increased excretion of nitrogen and phosphorus in the urine. The increase in the amount of nitrogen eliminated is due, *primarily*, to the washing out from the tissues of the urea previously formed, but which has not been removed in the normal processes, and secondarily, to a stimulation of the proteid catabolism.

The increase in the excretion of phosphorus is due to increased cellular activity and the accompanying catabolism of nucleins, lecithins, and other phosphorus-containing bodies.

Strauss¹⁰ says that increased supply of liquids increases the excretion of the products of protein metabolism, but does not hasten the metabolism itself. The excretion of liquids is accompanied by loss of body weight dependent on removal of nitrogen waste, but not on loss of fat.

Fowler and Hawk,¹¹ in continuation of the studies on water drinking, investigated in the human subject the effect of the copious ingestion of water *with meals*. The subject of the experiment was placed on a normal, constant diet, and by means of a preliminary period of sufficient length, was brought to a condition of approximate nitrogen equilibrium. At this point 1000 cubic centimeters of water were added to each meal and continued thus through a period of five days. Immediately following this period came a final period of eight days, during which the original normal constant diet was again maintained and the after-effects of the copious water ingestion observed.

In view of their experiments, they regard the current statements respecting the exceedingly harmful influence of water drinking with meals as misleading, and arrive at the following conclusions:—

The daily drinking of three litres of water *with meals*, for a period of five days, by a man twenty-two years of age, who was in a condition of nitrogen equilibrium through the ingestion of a uniform diet, produced the following findings:—

1. An increase in body weight, aggregating two pounds in five days.

2. An increased secretion of urinary nitrogen; the excess nitrogen being mainly in the form of urea, ammonia, and creatine.

3. A decreased excretion of creatinine and the coincident appearance of creatine in the urine. The decreased creatinine output is believed to indicate that the copious water drinking has stimulated protein catabolism. The appearance of creatine is considered evidence that

the water has caused a *partial* muscular disintegration resulting in the release of creatine, but not profound enough to yield the total nitrogen content of the muscle. The output of creatine is, therefore, out of all proportion to the increase of the excretion of total nitrogen.

4. An increased output of ammonia, which is interpreted as indicating an increased output of gastric juice.

5. A decreased excretion of feces and of fecal nitrogen, the decrease in the excretion of fecal nitrogen being of sufficient magnitude to secure a lowered excretion of both the bacterial and the non-bacterial nitrogen.

6. A decrease in the quantity of bacteria excreted daily.

7. An increase in the percentage of total nitrogen appearing as bacterial nitrogen.

8. A lower creatinine coefficient.

9. A more economical utilization of the protein constituents of the diet.

10. The general conclusion to be reached as the result of this experiment is to the effect that the drinking of a large amount of water with meals was attended by many desirable and by no undesirable features.

J. B. Orr,¹² in a series of experiments on humans, gives the following summary. The excessive ingestion of water produces:—

1. An increased excretion of urinary nitrogen, which is most marked on a low protein diet.

2. A retention of nitrogen on the return to normal consumption of water in the case of excessive protein intake.

3. An increase in the percentage of total nitrogen excreted as urea.

4. A marked increase in the excretion of ammonia.

5. No excretion of creatine and no decrease in the excretion of creatinine.

6. A decrease in the fecal nitrogen, which is interpreted as indicating a more complete utilization of the food protein.

It is suggested that the results indicate that the influence of the increased water consumption is to accelerate both the catabolic and the anabolic phases of protein metabolism.

Hawk¹³ showed that when water drinking accompanies the taking of food, the passage of water is delayed somewhat. His experiments showed that the equivalents of from one-half to three-quarters of the amount of water ingested during a meal, if this amount was large, may be voided in the urine within 45 to 90 minutes thereafter. That the food elements were not thereby washed through the stomach into the intestine was shown by Cohnheim.¹⁴ Along the smaller curvature there is formed a trough connecting the antrum pylori with the cardiac opening, and through this water flows past the bolus of food lying in the stomach without washing any of the exterior away. Even when digestion is at its height, and when gastric juice is being

secreted in large amounts, almost neutral water is often found leaving the stomach. Cohnheim also states that there is no dilution of the stomach contents by liquid food, and the accurate regulation of the pyloric sphincter is not disturbed whether water is taken with the meal or not.

From this brief review of the facts regarding the drinking of water with meals, we may say:

1. The ingestion of large amounts of water with meals not only does not inhibit the normal flow of digestive juices, but acts as an excitant to their flow.
2. The digestive juices are not rendered less efficient by dilution, but on the contrary, enzyme action is more complete, within limits, the greater the dilution.
3. Even if the food were washed into the intestine more rapidly than usual, contrary to Cohnheim's belief, the greater efficiency and greater amount of the digestive juices would outbalance this.

Hawk¹⁵ carried on some other experiments on men living on a uniform diet to determine the utilization of ingested fat under the influence of copious and moderate water-drinking with meals. He found that when one liter of water additional was taken with meals, the average daily excretion of fat in the feces was much reduced below that found when a minimum amount of water was taken with meals; one and one-third liters had a like effect; a similar but less marked reduction was observed when 500 c.c. of water were taken with meals.

The decreased excretion of fat observed during water drinking with meals was usually evident for a number of days after water had ceased to be taken in large or moderate amounts with meals, indicating that the beneficial influence of water was not temporary but was more or less permanent.

A slight gain in weight accompanied the water drinking, and this gain was not subsequently lost.

After several months of moderate water drinking with meals, a pronounced improvement in the digestibility of fat was observed, the percentage utilization having risen from 94.3 to 96.5.

The better digestion and absorption of fat was probably due to the following factors:

1. Increased secretion of gastric juice and independently of pancreatic juice as a result of the stimulating action of water.
2. Increased acidity of the chyme, bringing about a more active secretion of pancreatic juice and bile.
3. Increased peristalsis, due to larger volume of material in the intestine, and increased blood pressure due to rapidly absorbed water.
4. A more complete hydrolysis of the fats by lipase, due to increased dilution of the medium and consequent more rapid absorption.

Hawk¹⁶ in another paper gives the results of his investigations on the utilization of ingested protein under the influence of copious and moderate water drinking with meals.

He found that the ingestion of large amounts (1000 c.c.) of water with meals caused the protein constituents of the food to be more completely utilized, as shown by a decrease in all forms of nitrogen in the feces. When 500 c.c. were taken with meals, no significant changes in protein utilization could be observed, as there were in fat and carbohydrate; the protein data do, however, permit of the negative conclusion, that absolutely no undesirable effects were to be observed as the result of the ingestion of 500 c.c. of water with the meals. Even when over two liters of water were taken daily, with the meals, there was no indication of untoward effects as a result.

As before, the beneficial results of water ingestion with meals were not transitory, but were more or less permanent, extending beyond the time of the experimental period.

A tenth paper by Hawk on the fecal output and its carbohydrate content under the influence of copious and moderate water drinking with meals, ends with the following conclusions:—

1. In men living on a uniform diet the addition of 1000 c.c. of water to each meal causes a decrease in the excretion of fecal material, both dry matter and moisture.
2. Under the same conditions a decrease in excreted carbohydrate material was also observed.
3. The better utilization of food material thus evident was not temporary, but appeared to extend for some time following the use of water.
4. The ingestion of a smaller amount of water (500 c.c.) and the use of a large volume of water (1333 c.c.) by one accustomed to drinking water with meals showed a similar but less marked reduction in the excretion of carbohydrate.
6. The beneficial effects noted are probably due to the stimulatory action of water upon the digestive secretions, to the increased dilution which facilitates enzyme action and materially aids in absorption, and to a conservation of the intestinal energy involved in the secretion of a diluting fluid which is necessary when insufficient water is ingested.
8. Many desirable and no undesirable effects were obtained by the use of water with meals, and, in general, the more water taken the more pronounced were the benefits.

These laboratory findings are entirely corroborative of the observation of the writer that abundant water drinking during meals promotes rather than impairs health. Brought up in the country in the same house with several boys and girls, the writer was allowed and even encouraged to drink abundantly of water at each of

the meals, especially as the water supply was supposed to be uncommonly good. As children we were never ill, and all have carried the water drinking habit through life. The writer ever since he can remember has taken from two to six tumblers of water at each meal, and has had perfect health throughout his whole life. On first hearing that water should be taken between meals to insure good health, a little reflection convinced him that the rule could not be universal, for here was he and his early companions living examples to the contrary. He, therefore, not only made no change in his own habits, but encouraged others to do as he did, and later in life so advised his patients. The reasoning was as follows: the gastric juice, bile, pancreatic juice, and intestinal juices necessary for digestion are supplied as fluids derived from the secreting cells of the respective glands. The secreting cells obtain their supply from the liquid portions of the blood, which in turn is kept in proper bulk by the absorption of water wherever it can be obtained. It would seem to be more natural to seek its supply through the intestines at the time of digestion, and therefore the taking of water with meals, since it satisfied a natural desire and, moreover, was productive of a sense of well-being, was to be commended.

The observation was made that children and untutored people ate and drank at the same time, not only without harm but apparently with benefit.

In conclusion, therefore, we may say as the result of clinical observation, supported by laboratory research, that it is advisable for people in ordinary health to drink water as desired with meals, or to the extent of from 2 to 4 or more tumblers at each repast, and that we may expect a continuance of good health in so doing, or an improvement even, provided that the food taken be first thoroughly masticated and insalivated and then swallowed, and that the water be then ingested.

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Original Articles.

THE STARVATION METHOD VERSUS GRADUAL CARBOHYDRATE REDUCTION AS A TIME SAVER IN THE TREATMENT OF DIABETES.

BY HENRY A. CHRISTIAN, M.D., BOSTON.

[From the Medical Clinic of the Peter Bent Brigham Hospital.]

A LARGE proportion of the diabetic patients coming to our hospitals are wage earners or housewives, only in part incapacitated for their regular duties. A small proportion are advanced cases no longer able to work. To the former, days saved in their treatment are of very great importance. Incidentally days saved in treatment are economies in hospital administration, which allow the benefits of the institution to be bestowed upon more individuals per annum. In both ways there is a marked gain in shortening the time required for treatment in any disease. With these facts in mind let us examine our methods of managing diabetes from the point of view of time.

Today in treating a diabetic we seek first to grade the case according to severity, second to get the patient's urine sugar-free, and third to establish his limits of tolerance to glucose-producing foods and so far as possible to increase this tolerance, and in doing this we desire to avoid risks to the patient and to maintain the patient in as good a state of strength and comfort as possible. For the first we find out the patient's excretion of glucose and acetone bodies when ingesting some standard diet containing known amounts of protein, carbohydrate and fat. Usually such a diet contains about 100 gms. of protein and 55 gms. of carbohydrate.

To get the patient sugar-free the method followed until recently has been the gradual reduction of the carbohydrates of the diet. Lately, following the investigations of Allen,¹ diabetic patients have been starved until they are sugar-free. Starvation has been complete in some cases; in others thrice boiled green vegetables² have been given. At times alcohol has been allowed to supply some calories during the period in which the patients were being starved.

To establish the limits of tolerance, to the diets of sugar-free patients gradually are added known amounts of carbohydrate and protein; the amount being determined by the continuance or not of the absence from the urine of glucose.

Without attempting to discuss the theories underlying metabolism in diabetes, the time element in getting the patient sugar-free by each of these two methods will be illustrated by consequent

¹ Allen, F. M.: The Treatment of Diabetes. *Boston Med. and Surg. Jour.*, 1915, Vol. clxvii, p. 241.

² The vegetables are boiled through three waters, the water away all the water. Nearly all starch is thus removed, and the most severe cases generally take these thrice-boiled vegetables gladly and without glycosuria.

tive cases admitted to the Peter Bent Brigham Hospital. The earlier cases were treated by a gradual reduction in the carbohydrate intake; the later by Allen's starvation method. In each method the first two or three days were used in grading the severity of the case by studying the excretion in relation to a standard diet. Though taken in succession, none of these cases happened to be of the type grouped as severe. In fact, the figures given show the results of treatment only in mild or moderately severe diabetics.

In Chart I appears the approximate duration of the symptoms of the disease and the day on which the patient got sugar-free.

CHART I.—DIABETIC CASES—GRADUAL REDUCTION OF THE CARBOHYDRATE INTAKE.

Med. No.	Duration of Symptoms.	Sugar-free on the	7th day
1651	4½ months	" " " "	19th "
1661	2 years	" " " "	14th "
1676	?	" " " "	7th "
1737	?	" " " "	9th "
1766	2 years	" " " "	20th "
1786	7 years	" " " "	2d "
1880	8 years	" " " "	11th "
1911	4 years	" " " "	

STARVATION METHOD.

Med. No.	Duration of Symptoms.	Sugar-free on the	4th day
2046	10 months	" " " "	3d "
2115	6 years	" " " "	3d "
2252	3 years	" " " "	3d "
2317	2 years	" " " "	1st *
2375	1 month	" " " "	3d "
2394	5 years	" " " "	5th "
2490	6 months	" " " "	4th "
2219	3 weeks	" " " "	

* Starved as soon as admitted to the hospital.

Of our series of recent diabetics the average duration of the treatment by the gradual reduction of the carbohydrate intake was for these patients 8.9 days between the time of admission and the first day on which the patient's urine was sugar-free. By the starvation method the

average for the same thing was 3.2 days, which time includes in all except one case, one or two days of a diet given with the view of standardizing the severity of the diabetes in these cases. Had these patients been put on a starvation diet on admission then the time would have been reduced by one or two days.

Particularly interesting in this connection is a group of cases which were in the hospital more than one time and so were subjected to both methods of management. The first time carbohydrates were gradually reduced because this admission antedated the publication of Allen's method. The second admission of the patient was after we had begun to use Allen's method. Two cases were begun with the gradual reduction of the carbohydrate intake and subsequently were put upon Allen's starvation method. These cases will be briefly reviewed.

A patient (Peter Bent Brigham Hospital, Med. No. 330) was admitted to the hospital Sept. 9, 1913, giving the history of having had itching and soreness about the genitals for six weeks and for one week frequent and painful urination. By gradual reduction of carbohydrate intake she was sugar-free on the 11th day, again on the 14th day, and finally on the 25th day, after which she remained sugar-free. The amount of carbohydrate intake and the amount of glucose in the urine is shown in the accompanying chart. (Chart II.)³

This patient was readmitted to the hospital on February 3, 1915 (Peter Bent Brigham Hospital, Med. No. 2276). On this admission she was put on the Allen starvation treatment, and on the 3d day of her stay in the hospital she became sugar-free, as shown by the chart. (Chart III.)

In a similar way another patient (Peter Bent Brigham Hospital Med. No. 1230) was admitted to the hospital on May 21, 1914, giving a history that eight years previously sugar had been discovered in her urine. By the method of gradual reduction of the carbohydrate intake this patient did not become

³ In these charts the solid black columns represent carbohydrate intake in grams and the hatched columns glucose in the urine in grams.

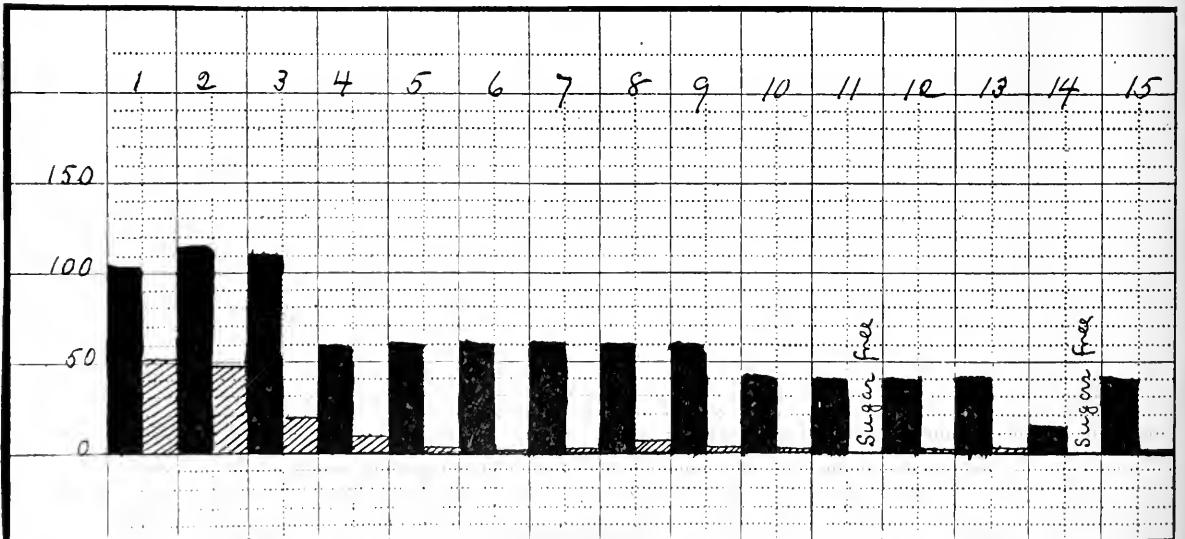


Chart II.

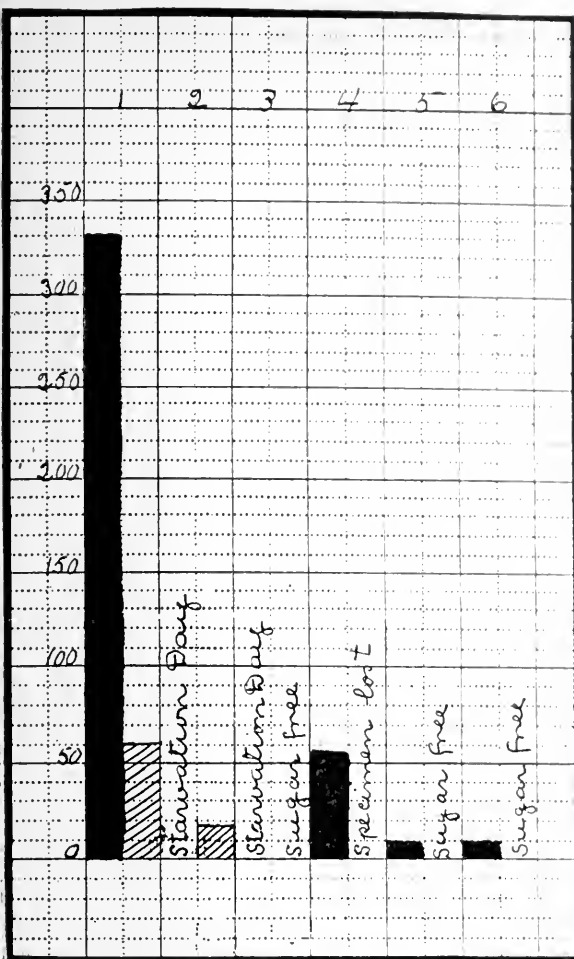


CHART III.

sugar-free until the 18th day. She was admitted to the hospital a second time (Peter Bent Brigham Hospital, Med. No. 2245) on January 29, 1915, and by the starvation method became sugar-free on the third day.

A third patient (Peter Bent Brigham Hospital, Med. No. 942) was admitted to the hospital March 12, 1914, giving the history that sugar had been found in her urine three years before admission, since which time she has been constantly annoyed with headaches, thirst, polyuria and for a somewhat longer time she has had an ulcer on the left leg. By the gradual reduction method she became sugar-free on the 15th day. (Chart IV.)

This patient was readmitted to the hospital (Peter Bent Brigham Hospital, Med. No. 2509) on March 18, 1915, and on the starvation method became sugar-free on the 3d day. (Chart V.)

The following case is of particular interest in this connection because it represents a severe case of diabetes in whom we had much difficulty getting the patient sugar-free by the ordinary method of gradual reduction of the carbohydrate intake, and who, after becoming sugar-free, repeatedly had traces of sugar on very slight carbohydrate intake, though he would get sugar-free after one, two or three ordinary green vegetable days. This patient (Peter Bent Brigham Hospital, Med. No. 1655) was admitted to the hospital on Sept. 17, 1914, with a history of having developed excessive thirst with polyuria about nine months before admission. With gradual reduction of carbohydrate intake he had become sugar-free for the first time on the 25th day, following three ordinary (not thrice boiled) green vegetable days. Sugar reappeared after two days with a very moderate carbohydrate intake. It disappeared only after a repetition of the green vegetable days. He then remained sugar-free for 11 days on a 5 gm. carbohydrate and 65-70 gm. protein intake. This took him to Oct. 30, 1914. From Oct. 30 to Nov. 4 his urine contained a trace of sugar on this same diet. This trace disappeared on Nov. 5 and remained absent until Nov. 16, when with a very slight increase in his carbohydrate intake and a slight reduction in his protein intake sugar reappeared in small quantities. This picture repeated itself until Dec. 15, when he was put on a succession of seven days of thrice-boiled vegetables with alcohol, as described by Allen. Following this, he was sugar-free for only a few days and then began to put out from 10-12 gms. of sugar per day up to Dec. 29, when, following three days of thrice-boiled vegetables and alcohol he became sugar-free

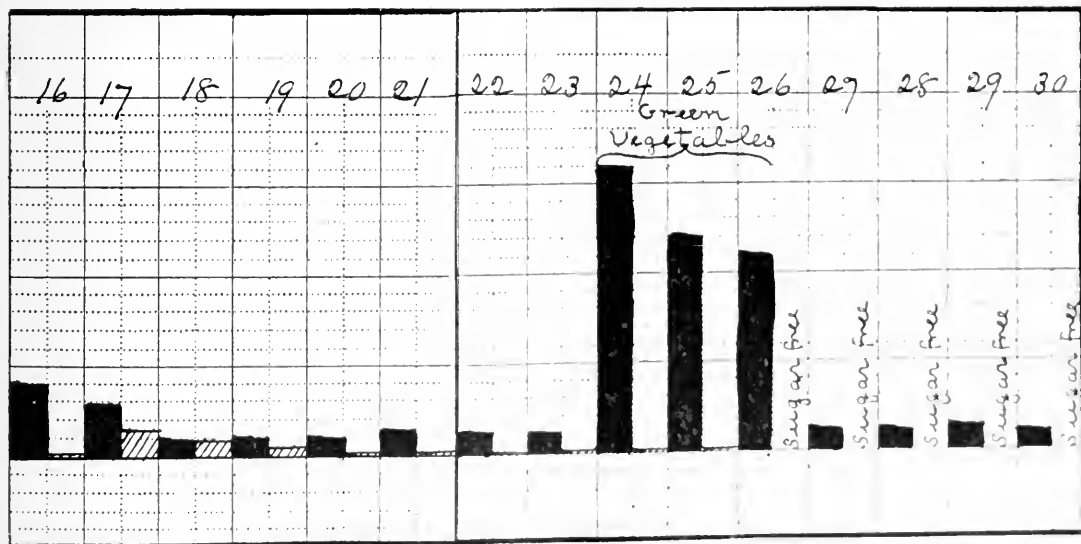


Chart II.

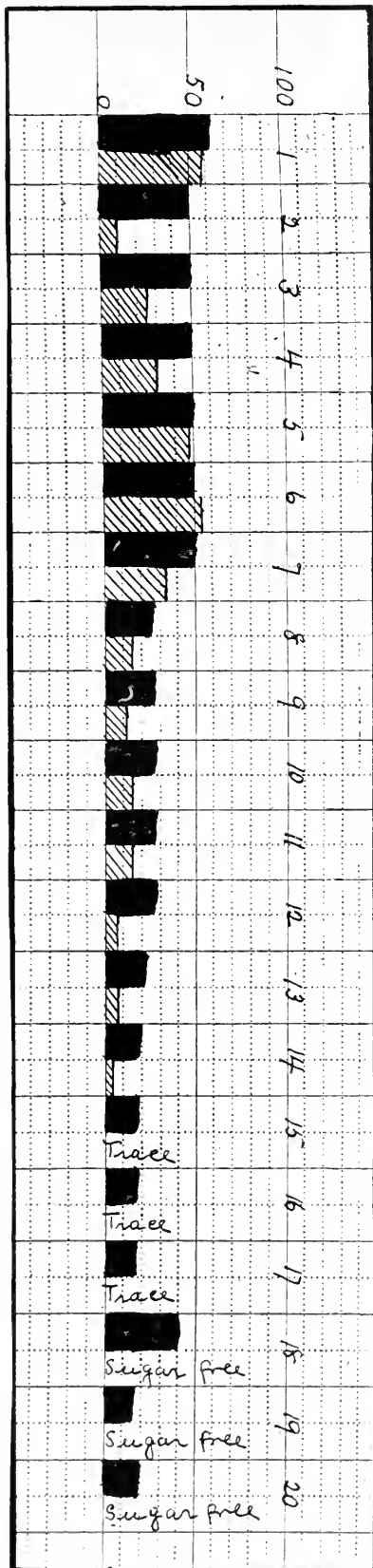


CHART IV.

and remained so until Jan. 13, when a slight amount of sugar appeared in his urine following a slight increase in his diet. This patient's weight chart was of much interest as he gained weight steadily on his reduced diet, and only remained sugar-free when his caloric intake was so reduced following starvation days that his weight made only slight gains.

Somewhat similar is the following patient (Peter Bent Brigham Hospital, Med. No. 1963) who was admitted to the Hospital Nov. 27, 1914, with a history of polyuria beginning four or five days before admission. On a gradual reduction of carbohydrate intake, this patient was still putting out sugar in his urine 17 days after admission on a diet of 10 gms. of carbohydrate, and 50-60 gms. of protein. He was then given a day on which he had only thrice-boiled vegetables and alcohol. On the second day of this he became sugar-free. However, he was kept on this diet for four days, but when he was returned to a 10 gm. carbohydrate and 90 gm. protein diet sugar reappeared, but promptly disappeared on a repetition of the thrice-boiled vegetable days. Subsequent to this he remained sugar-free on a 10 gm. carbohydrate and 60 gm. protein diet and established some tolerance, so that he eventually was sugar-free on a diet of 30 gms. of carbohydrate and 80 gms. of protein.

In all of these cases fluid, carbohydrate and protein intake were charted in relation to output; the patient's weight was noted; the caloric intake; acetone, diacetic acid and ammonia excretion, etc., were quantitated. However, in the present paper only the glucose excretion has been considered in relation to the time element. In Chart I it will be seen that it required of each patient, with the exception of one exceedingly mild case, a stay in the hospital of from 7 to 20 days before the urine became sugar-free when carbohydrates were gradually reduced, while by Allen's starvation method the same thing was accomplished for all except one patient in 4 days or less. The difference in results obtained from the two methods is shown especially well by the cases treated on two admissions approximately one year apart. In these three patients it required 25 days, 18 days and 15 days respectively to render them sugar-free by the method of gradual reduction of carbohydrate intake, while each was sugar-free on the third day by the Allen starvation method.

It will be seen that by this new method of managing cases of diabetes introduced by Dr. Allen the time required for rendering a patient sugar-free has been greatly shortened. It is done, too, so far as we have observed, with very slight inconvenience or discomfort to the patient. What of the third aim of a diabetic treatment, the establishment of an increased tolerance? It has seemed to us that tolerance is as rapidly acquired after the starvation method of getting the patient sugar-free as after gradual carbohydrate reduction. This being true, Dr. Allen's methods have shortened very materially the time of hospital stay required of cases of diabetes of moderate severity, and in this respect have improved

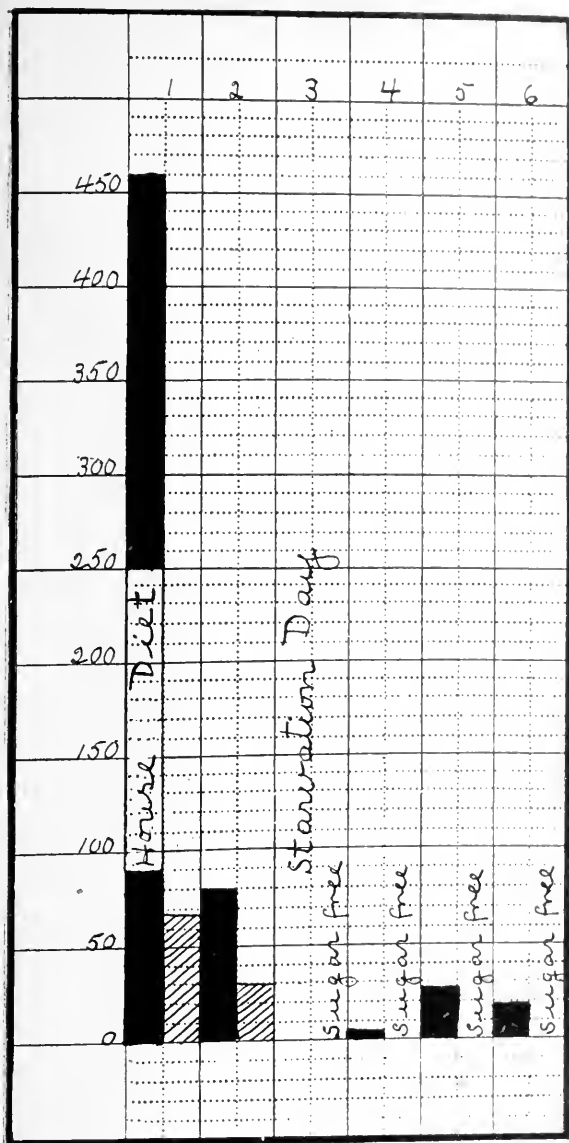


CHART V.

greatly our means of managing diabetics. Dr. Allen himself has pointed out the value of his methods in managing cases of very great severity. They seem to us to be thoroughly safe methods to apply in treating any case of diabetes.

SUMMARY.

The starvation method of Allen for rendering a diabetic sugar-free, in addition to being a safe method, has shortened very materially the time required to get a patient with diabetes sugar-free, and so permits of a large part of the patient's stay in the hospital being devoted to building up the patient's tolerance for carbohydrates. To put it another way, the method saves for the patient and for the hospital one or two weeks of time.

PSYCHOPATHIC HOSPITALS AND PROPHYLAXIS.*

By FRANKWOOD E. WILLIAMS, M.D., BOSTON.

Executive Secretary, Massachusetts Society for Mental Hygiene.

From the point of view of mental hygiene, individuals may be said to fall into one of four groups:

1. Those now sane, and who will remain sane except through the working of some exogenous factor.
2. Those now sane, but who will become insane under certain conditions.
3. Those now insane.
4. Those who have been insane but who are now recovered and returned to the community.

A fifth group might be added—those yet unborn.

A program of mental hygiene must provide adequately for each of these groups. Our present system in Massachusetts provides—but not adequately, as for instance in the case of the feeble-minded and defective delinquent—for the care of those at present suffering from mental disease, and with its social service departments and its newly organized out-patient departments, for those who have been insane but who are now recovered. But from the prophylactic point of view these two groups are of the least importance.

Providing for the care of the mentally diseased after the damage has been done, important and essential as a humanitarian measure, will have as little effect in the prevention of first attacks of insanity as providing elaborate care for patients suffering from typhoid fever would have in the prevention of an increase of typhoid fever. The field for prophylaxis lies in the first two groups—those now sane, who will remain sane except through the working of some exogenous factor; and those now sane but who will become insane under certain conditions.

There are, today, in our state hospitals approximately 14,000 patients. From a prophylactic standpoint little can be done for these. But new cases are admitted to our hospitals at the rate of about 3,000 a year. The problem is, how to prevent these 3,000 each year from becoming insane. It is too much to expect that the time will ever come when this figure will be reduced to a zero. But at the present we are doing little to impede its progress to a maximum, with the maximum not yet in sight, when we might be taking steps to reduce it to a minimum. The seeds of mental disease were sown in the

* Read before the Worcester District Medical Society, February 19, 1915.

bodies of some of this year's 3,000, ten, fifteen, twenty years ago, in the form of syphilis. These patients are lost to us. But there are young men and young women who have contracted syphilis today; there are others who will contract it tomorrow, and thus become candidates for admission. For those who will be admitted this year suffering from alcoholic psychoses nothing can now be done. But these individuals are now at the end of a road which once had a beginning, and there are others entering that road today. A healthy mentality cannot be given to the feeble-minded girls now cared for by charity organizations in maternity hospitals and nothing except lack of facilities will prevent them from becoming patients at one of the schools for the feeble-minded as soon as their health will permit. But there was a time, some fifteen or twenty years ago, when prophylactic measures—the proper segregation of their feeble-minded parents, for example—would have been effective. In the case of the yet unborn children, prophylactic measures might have been applied but a few months ago. They can still be applied to the feeble-minded girls who will otherwise come to the maternity hospitals in the next twelve months of this year, and thus would be decreased the admission rate for the feeble-minded four, five, ten, fifteen years from now. There were graduated from the high schools of the state last June many ambitious young men and women who last fall entered the universities and professional schools, and who before the school year is over will have succumbed to the strain and will have been admitted to our hospitals. Many of these came of neurotic stock, and early showed peculiarities and idiosyncrasies of temperament, emotion and mental habit that might have forewarned an alert parent or family physician. Little can now be hoped for; the damage is done. But there are others who will be graduated next June, and through lack of proper understanding of themselves, start on the self-same course.

One of the great factors impeding the progress of proper measures is the inertia due to the feeling of hopelessness and helplessness with which mental disease is regarded, and the prejudice engendered by misconceptions of the nature of mental disease. The idea of diabolical possession in the case of the insanities is no longer entertained, but the theological conception which supplanted this middle age explanation—that insanity is pure mental and moral perversion and represents the outbreak of the animal and violent elements of the fallen human soul which have culpably been permitted to get the upper hand of the higher attributes—is still too prevalent. Kindred to this is the fallacy that "once insane always insane." We must come to understand that insanity is a disease. Further, that the term represents not a disease entity, but a group of diseases. And still further, that the legal diagnosis "Insane"—and the term

insane is a legal and not a medical term—carries with it no connotation as to possible outcome. Many of the insanities are not recoverable, it is true. Others are recoverable, and it should be borne in mind that when individuals recover from such forms of mental disease and return to the community, they are as capable intellectually as before their illness.

Massachusetts is one of the few states that has upon its statute books laws providing for the temporary care and voluntary admission of patients in the early stages of mental disease. These laws are wisely conceived, capable of serving a splendid purpose, and from the prophylactic point of view mark an important advance in legislation for the insane. Statistics show, however, that outside of the metropolitan district of Boston, served by the Boston Psychopathic Hospital, these laws are but little used. In some districts this is because of lack of proper facilities in the immediate neighborhood. In others it is because of a lack of a proper understanding of the purpose, action and types of cases that are advantageously served by these laws on the part of the general practitioners. In still other communities the difficulty lies in the middle 19th century views of mental disease held by members of the legal profession occupying positions as judges. We may experience something of a shock when we learn that a neighboring state still classes the insane with the criminal and places the supervision of the state hospitals in the hands of the board of prison commissioners. But it is well to examine ourselves. In one district of this commonwealth a patient who has been examined at a state hospital and found to be suffering from a mental disease, must suffer a trip back to the city from which he came, be taken to the police station, have his name entered upon the police blotter in the manner of a criminal, and must then be paraded before the police court to permit the judge to make a diagnosis before treatment of more than a week can be vouchsafed to him as a sick man. Such archaic notions impede mightily proper progress. An individual bereft of his reason has rights as an individual that must be protected, but in protecting his rights as an individual we must not forget that he has rights as a patient, and that the hope of soon regaining his rights as an individual may largely depend upon the respect that is given, at a critical time, his rights as a patient.

These misconceptions, these prejudices, these exogenous and environmental factors, so important in the prevention of mental disease, should be materially influenced in any community by the presence of a psychopathic hospital. A psychopathic hospital, in conjunction with its other functions, should serve as a prophylactic and educational station. Standing in a community on the plane with the general hospital or other specialized hospital it emphasizes mental disease as a disease and should serve as a center

to which may come for advice and counsel those suffering from psychoneuroses and the early stages of mental disease as easily and freely, and with as little prejudice as those suffering from the early stages of tuberculosis seek out a hospital for tuberculosis; a center to which can be brought for diagnosis the supposedly backward child, before further social damage has been done; a center to which parents aware of the neurotic inheritance of their children can come for advice in their children's upbringing and protection. From its lecture platform adults should receive instruction which would lead them to a better understanding of their own complex emotions, sensations and impulses, and practicing physicians should be instructed in the significance of certain early manifestations of mental disease, that they may be as capable in diagnosing and protecting these patients as they are those manifesting the early signs and symptoms of tuberculosis or cancer. Prophylaxis is but one of the many functions of a psychopathic hospital, but its possibilities as a prophylactic and educational center should not be overlooked.

PROGRAM AND DIRECTIONS FOR THE MENTAL EXAMINATION OF ASOCIAL, PSYCHOPATHIC AND DOUBTFUL SUBJECTS.

BY ROSE S. HARDWICK, BOSTON,

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(Concluded from page 930.)

CLASSIFICATION OF TESTS.

The following classifications of the tests with respect to the mental functions involved are given for convenience of reference, and not as being by any means exhaustive.

The first table shows the tests in the order in which they occur in the Point Scale, the Binet Scale, the Healy Tests, the Knox Scale, and the Miscellaneous group. After each test are indicated the principal functions involved.

In the second table the same tests are reclassified under the heads of mental functions likely to be of special interest.

TABLE 1.

(Showing principal mental functions involved in each test.)

THE YERKES-BRIDGES POINT SCALE.

1. Aesthetic judgment involving perception, association, analysis.

2. Perception, apperception, visual memory, imagination.
3. Discrimination—(a) visual, (b) and (c) kinaesthetic.
4. Auditory memory for words (digits), attention.
5. Memory, imagination, attention.
6. Auditory memory for sentences, attention.
7. Perception (visual—of things, relations, meanings), association, imagination.
8. Kinaesthetic discrimination, ideation (notion of series), attention.
9. Analysis and comparison of remembered objects, attention.
10. Ideation (association and analysis).
11. Suggestibility, visual perception, comparison.
12. Motor coördination, visual perception.
13. Association (free), vocabulary, attention.
14. Imagination and command of language forms.
15. Practical judgment involving memory and imagination.
16. Visual memory, perception, attention, motor coördination.
17. Logical judgment based on imagination, analysis and reasoning.
18. Ideation, involving vocabulary, analysis, imagination, command of language forms.
9. Ideation, involving vocabulary, memory, analysis.
20. Logical judgment based on analysis and reasoning, attention, memory.

THE BINET-SIMON SCALE.

- III 1. Information, vocabulary, motor coördination.
2 = Y 6 a.
3 = Y 4 (?).
4 = Y 7.
- IV 1. Information, vocabulary.
2. Information, vocabulary, recognition.
3 = Y 4 a.
4 = Y 3 a.
- V 1 = Y 3 b and c.
2 = Y 12 a.
3 = Y 6 b.
4. Information, ideation (notion of enumeration).
5. Analysis and constructive imagination.
- VI 1. Information, perception association ideation (notion of time).
2 = Y 10.
3. Auditory apprehension for ideas, memory, attention.
4. Information, ideation (notion of right and left).
5 = Y 1.
- VII 1. (Compare V 4.)
2 = Y 7.
3 = Y 2.
4 = Y 12 b.

5. Information, color discrimination.
- VIII 1 = Y 9.
2 = Y 5.
3. Information, verbal association, ideation (notion of time).
4. Information, ideation (notion of value).
5 = Y 4 c.
- IX 1. Information, ideation (notion of equivalents).
2 = Y 10.
3. Information, ideation (notion of time).
4. Information, verbal association, ideation (notion of time).
5 = Y 8.
- X 1. Information, recognition.
2 = Y 16.
3 = Y 4 d.
4 = Y 15.
5 = Y 14.
- XI 1 = Y 17.
2 = Y 14.
3 = Y 13.
4. Aesthetic perception.
5 = Y 18.
- XII 1 = Y 4 e.
2 = Y 19.
3 = Y 6 d.
4 = Y 11.
5. Information, memory, constructive imagination.
- XV 1 = Y 7.
2. Information, attention, mental imagery, analysis, constructive imagination.
3. Ideation, attention, association, mental imagery, analysis, constructive imagination.
4. Association, (controlled), reaction-time.
- Adult 1. Ideation, analysis, constructive imagination.
2. Ideation, analysis, constructive imagination.
3. Information, vocabulary, analysis.
4. Information, vocabulary, analysis.
5. Attention (auditory), command of language forms. apprehension, analysis.

The word "information," occurring so frequently in this table, is not intended to stress unduly the more mechanical aspects of the tests, to the obscuring of their real psychological value, but to draw attention to the dependence of these particular tests upon environment. The fact is that, while correct responses in these cases do necessitate a certain mental development, the reverse does not hold true. A child may fail completely in one or more such tests without being in the least retarded mentally, and solely on account of peculiarities of environment. Thus, from the two extremes of social privilege, institution life and homes of excep-

tional wealth, come children who know nothing of money, and who, therefore, fail on VIII 4, IX 1 and X 1. On the other hand, children of small shopkeepers acquire these notions very early. Hence it is important to keep in mind always the dependence of such tests upon environment, and the danger of resting positive conclusions upon failures therein.

THE HEALY TESTS.

1. Perception (visual—rarely kinaesthetic) of form, color, and relations of part and whole, motor coördination, attention.
- II. Same as I.
- III. Same as I except for absence of color.
- IV. Same as I except for absence of color.
- V. Analysis of a concrete situation, reasoning.
- VI. Memory (visual) for concrete situation—fullness and reliability in free recital and under questioning, suggestibility.
- VII. = Y 16.
- VIII. Memory (visual and kinaesthetic) for IX. X, XI = B XV 3 (?) arbitrary associations.
- XII. Memory (visual verbal) for connected ideas.
- XIII. Memory (auditory verbal) for connected ideas.
- XIV. Memory (auditory verbal) for arbitrarily associated ideas.
- XV. = B XV 4.
- XVI. Motor coördination (accuracy and speed), attention, fatigue.
- XVII. Motor coördination, reaction to formal education.
- XVIII and XIX. Reaction to formal education.
- XX. Affectivity, constructive imagination.
- XXI. Information, analysis, constructive imagination, sentiments.
- XXII. Information, stock of ideas, sentiments, instincts.
- XXIII. Analysis, constructive imagination.

THE KNOX SCALE.

- III 1. Information, vocabulary(?), recognition.
2 = B III 1.
3 = B III 3.
4 = B III 4.
5. Information, vocabulary.
- IV 1. Perception (visual—rarely kinaesthetic) of form and size, motor coördination, attention.
2. Visual apprehension, memory, motor coördination.
3 = B IV 3 = Y 4 a.
4 = B IV 2.
5 = B IV 1.
- V 1. Compare IV 1.
2. Compare IV 2.
3 (= B V 4?)

4 = B V 2 = Y 12 a (and copy circle).

5. Auditory apprehension for ideas, memory, attention.

VI 1. Compare IV 1.

2. Compare IV 2.

3. Visual apprehension, analysis, memory.

4 = B VI 4.

5. Information, ideation (notion of time).

6 = B VI 3. Compare K V 5.

7. Information, perception, memory.

VII 1. Compare IV 1 and 2.

2. Compare IV 1.

3. Compare VI 3.

4 = B VII 4.

5 = Y 4 b.

6. Information, memory (verbal association).

7. Perception (visual, of relations), association.

VIII 1 = H III (in 5 minutes).

2. Compare IV 2.

3 = Y 5 = B VIII 2.

4. Analysis and comparison of remembered objects, attention.

5 = B VIII 5 = Y 4 c.

6 = B VII 5.

IX 1. Compare VIII 1.

2 = H 1.

3. Compare IV 1.

4 = B IX 3.

5 = B VIII 3 (and tell time approximately).

6 = B IX 5.

X 1. Perception (visual—rarely kinaesthetic) of form, size, and relations of part and whole, attention.

2. Perception (visual), analysis, comparison.

3 = B IX 4.

4. Information, ideation (notion of number).

5. Compare X 4.

6. Memory, imagination, attention.

XI 1. Compare IV 2.

2 = B X 3 = Y 4 d.

3. Auditory memory for ideas.

4. Compare VIII 4.

5. Memory, analysis, practical judgment, command of language.

6. Information, imagination, analysis.

XII 1. Compare X 1.

2 = B XI 1 = Y 17.

3. Logical judgment based on imagination, analysis and reasoning.

4 = B XII 5.

5. Compare XI 6.

6. Compare XI 6.

XIII and upward.

1. Compare IX 2.

2. Compare IX 2.

3. Compare V 5.

4 = Y 20 c.

5 = B XII 2(?) = Y 19(?)

6. Compare XI 6.

Adult (make-up).

1. Compare X 1.

2. Compare X 1.

3 = H IV.

4. Visual attention (voluntary).

5. Compare XI 5.

6. Compare XI 5.

7. Fertility of imagination (visual), stock of ideas, association.

MISCELLANEOUS TESTS

1. Attention, analysis, planning.

2. Attention (voluntary). This is properly an affair of visual attention, the subject actually cancelling the letters indicated, but it may be adapted to the testing of auditory attention if the examiner reads the letters aloud at a uniform rate and in a carefully monotonous voice, and requires the subject to record by a pencil stroke each time an A is pronounced. The weakness of this form of the test lies in the possibility that errors of omission and of interpolation may neutralize each other in the final count.

3. Attention (voluntary), rhythm (objective and subjective).

4. Memory (visual-kinaesthetic) for arbitrary associations.

5. Analysis, constructive imagination.

6. Analysis, reasoning, ethical judgment and discrimination, sentiments.

TABLE 2.

(Showing tests bearing upon important mental functions.)

Motor Coördination.

Coarser coördination, especially of arm muscles. B III 1, VI 3 and 4.

Finer coördinations of hand and arm muscles. Puzzles. Seguin's form-board (= K IV 1, V 1, IX 3); III (= K IX 2), II, III (= K VIII 1), IV (= K adult 3); K VI 1, VII 1 and 2, IX 1, X 1, XII 1, XIII 1 and 2, adult 1 and 2; K (cube imitation test) IV 2, V 2, VI 2, VIII 2, XI 1; K (construction-block test) VI 3, VII 3.

Drawing. Y 12 (= B V 2, and VII 4 = K V 4(?) and VII 4); Y 16 (= B X 2 = H VII); labyrinths.

Writing. Y 14 (= B X 5 and XI 2), 18 (= B XI 5).

Discrimination of weights. Y 3 b and c (= B V 1), 8 (= B IX 5).

Tapping. H XVI.

Attention.

Association tests. Y 13 (= B XI 3); B XV 4 (= H XV).

Memory tests. Y 4 (= B IV 3, VIII 5, X 3, XII 1); 6 (= B III 2, V 3, XII 3); H VI, XII, XIII.

Tests involving visualization and analysis. Y 5 (= B VIII 2), 9 (= B VIII 1), 20; B XII 5, XV 2; B XV 3 (= H XI); H IX, X.

Cancellation tests. W 26.

Counting dots. W 27; K adult 4.

Labyrinths, A and B.

Association.

Free. Y 13 (= B XI 3).

Controlled. B XV 4 (= H XV), XI 4.

Memory.

Auditory:

Digits. Y 4 (= B IV 3, VIII 5, X 3, XII 1 = K IV 3, VII 5, VIII 5, XI 2); B III 3 (= K III 3).

Sentences. Y 6 (= B III 2, V 3, XII 3).

Ideas. B VI 3 (= K VI 6); H XIII and XIV; K V 5, XI 3, XIII 3.

Visual:

Geometric figures. Y 16 (= B X 2).

Ideas (verbal). H XII.

Mixed or uncertain types:

Y 5 (= B VIII 2), 9 (= B VIII 1); H VI and VIII; K VI 3, VII 3, X 6, XI 5, adult 5 and 6.

Information.

General:

B III 1 (= K III 2), IV 1 (= K IV 5), IV 2 (= K IV 4), V 4 and VI 1, VI 4 (= K VI 4), VII 1 and 3, VII 5 (= K VIII 6), VIII 3 (= K IX 5(?); VIII 4, IX 1, IX 3 (= K IX 4), IX 4 (= K X 3), X 1, XII 5; K III 1 and 5, V 3, VI 5 and 7, VII 6, X 4 and 5, XI 6, XII 5 and 6, XIII 6.

Definitions:

Y 10 (= B VI 2, IX 2), 19 (= B XII 2 = K XIII 5(?)); B adult 3 and 4.

Comparisons:

Y 9 (= B VIII 1); K VIII 4 and XI 4.

Questions:

Y 15 (= B X 4); H XXII.

Judgment.

Y 1 (= B VI 5), 3 (= B IV 4 and V 1), 8 (= B IX 5 = K IX 6), 9 (= B VIII 1), 15 (= B X 4), 17 (= B XI 1 = K XII 2), 20; K X 2, XI 4, XII 3; B XII 5; H XXI; ethical discrimination.

Constructive Imagination.

Y 2 (= B VII 3), 7 (= B III 4 = K III 4), 14 (= B X 5 and XI 1), 18 (= XI 5), 20; B V 5, VII 2 (= K VII 7), XII 5 (= XII 4), XV 1, adult 1 and 2; H XXIII; prose completion; K adult 7.

Learning Capacity.

Ability to acquire, retain and use practical information. "Information" tests, both K and B; arithmetical tests, K; H XXII.

Ability to comprehend and to follow verbal

instructions. K V 5, VI 6 (= B VI 3), XIII 3; H XIII and XIV.

Ability to learn by imitation. K (cube imitation tests) IV 2, V 2, VI 2, VIII 2, XI 1; K (construction-block test) VI 3, VII 3; H XIV; K VII 1.

Ability to learn by experience in concrete situations. H I (= K IX 2), II, III (= K VIII 1), IV (= K adult 3); Seguin's form-board (K IV 1, V 1, IX 3); K VI 1, VII 1 and 2, IX 1, X 1, XII 1, XIII 1 and 2, adult 1 and 2. Various other tests, such as the labyrinths, may be adapted to this purpose if time is taken to repeat them. The time, and the number and character of the errors are the specially significant facts. The examiner should not rely on any mechanical interpretation of them, however. A fair time record may be made by a subject whose motor co-ordination is good, even though he repeat the same errors over and over. On the other hand, a very slow solution may be due to numerous errors, wandering attention, or careful planning.

Ability to analyze a concrete situation and to plan on the basis of that analysis. Same tests as for learning by experience; H V; labyrinths.

Affectivity.

Motor co-ordination. See tests under that head.

Reaction-time. All tests, but especially H I, II, III (= K VIII 1), IV; B XV 4 (= H XV).

Suggestibility. Y 11 (= B XII 4); H VI. It is doubtful how much significance should be attached to the first of these. The second reproduces much more nearly the conditions of everyday life in which suggestibility plays an important part.

Fatigue. (1) Tests consisting of several parts, such as Y 17 (= B XI 1); Y 20; (2) groups of similar tests, such as H III and IV; and (3) any repeated tests, such as H XVI.

Aesthetic appreciation. Y 1 (= B VI 5); B XI 4.

Reaction to the situation. Apart from the evidence gathered from specific tests, important affective characteristics may come to light incidentally, in the course of the examination. The subject's attitude at the beginning may be apprehensive, resistive, sullen, indifferent, or frankly responsive. During the interview his mood may change as regards attention, enjoyment and efficiency. He may improve in these respects, or the reverse; or, after gaining for a time, he may lose ground. Apprehensiveness may disappear quickly or slowly, may be removed by an explanation, or may vanish with fluctuating attention. Some individuals display a marked capacity for criticizing their own performance; others follow the instructions in a dull fashion, apparently indifferent to the quality of their work, while still others continually look to the examiner for approval. Some show distinct initiative, readily disposing of wraps and taking the indicated seat, co-operating in the tests, and occasionally making suggestions. Some

are self-helpful, considerate and courteous, respectful of property, whether their own or another's; while some are quite the reverse of all this. Some find more pleasure in the manual tests, and some in the mental. Finally, some appear to be destitute of ambition, whereas others take a healthy delight in achievement of any sort.

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Reports of Societies

CLINICAL CONFERENCE OF THE NEUROLOGICAL INSTITUTE, NEW YORK.

REGULAR MEETING MARCH 25, 1915. DR. J. RAMSAY HUNT IN THE CHAIR.

A CASE OF BRAIN TUMOR IN THE RIGHT POST-ROLANDIC AREA.

DR. WALTER CLARK HAUPT presented from the First Division a man whose symptoms though not pathognomonic of brain tumor nor yet classic in the way in which they unfolded were nevertheless believed to indicate a rapidly developing growth in the right post-rolandic area.

The patient was a clerk 40 years old, who, previous to the present illness, had been in good health and who never had had syphilis nor had he encountered trauma. He was in good health up to one year before coming into the hospital on March 15, 1915. The initial symptom seems to have been a sensation of heaviness and pressure in the left shoulder. This was not sufficient to prompt him to consult a physician nor did it keep him from work. As the discomfort was greater before a storm he attributed it to rheumatism, particularly as the pain and discomfort occurred occasionally in the right knee and hip. In December, 1914, that is, seven or

eight months after he first complained of these symptoms, they disappeared and he considered himself quite well up till six weeks ago when there developed simultaneously, with considerable abruptness, severe frontal and occipital headache worse on awaking in the morning; sensation of numbness, weakness and awkwardness in the left foot and leg; occasional twitching and pain in the muscles below the left knee and in the left knee; vomiting on several occasions during the early occurrence of these acute symptoms. The awkwardness of the left lower extremity was manifest particularly on standing, and he noticed when his attention was not kept on the left foot that the inside of the foot would gradually raise from the ground and the foot would wobble or balance on the outward edge. This gave him much insecurity and he had to exercise care not to fall although the strength in the leg was meantime quite enough to maintain him in security both in standing and in walking. He noticed also that he stumbled over a slight elevation or any obstacle in his way such as a rug on the floor and that the foot and leg did not "feel" right.

The clonic phenomenon which he speaks of is described by him as follows: "I had a pain in my left knee, a sharp pain, which lasted several minutes, then my leg began to twitch up and down and to have a feeling as if I must reach down and hold it. This lasted several minutes then it went away and I fell asleep." There seems to have been not only a consciousness of clonic spasm in the left leg but the manifestations of it were observable to others. The headache was his most distressing symptom and it continues to be. It was referred to the forehead and to the back of the head—an intense increasing benumbing pain—always worse in the morning and very bad when he makes an effort. The only relief he has had from it, he maintains, was the 24 hours following lumbar puncture.

His wife related he had not vomited for a week preceding his entrance to the hospital, and it may here be stated that he has not vomited in the ten days he has been in the hospital. He does not complain of any other symptoms, although, as will be seen later, he used the left hand undexterously he makes no complaint of it. Mentally he seems quite normal. He is quite reticent and desires to be left alone, but this is interpreted as an index of his suffering.

Physical examination reveals briefly what seems to be a left-sided hemiplegia, the lower extremity being involved much more profoundly than the upper. In walking the left leg is moved in an irregular ataxic way and it is to be observed that it tends to dart and sway to the left. He does not swing the left leg in a semicircle as does the capsular hemiplegic. There is no toe drop but he stumbles over small objects on the floor, and almost invariably trips on the rug as he passes over it. When walking he holds the left upper extremity semiflexed but when his attention is called to it he extends it but is scarcely noticed to swing it. It may quite well be that this position of the left upper extremity is involuntary to conserve his security by balancing. His gait is practically the same when he attempts to walk with eyes closed as when they are open. When he stands with the feet apart or the foot in apposition the tendency is for the left foot to turn over at the ankle and to wobble on the outer border.

Despite this obvious hemiplegia there is no real paralysis of the left lower extremity. He is able to execute every movement. The tap, tap, tap of the

toes of the left foot cannot be done so readily as the right but they can be done slowly but rather awkwardly. The strength of the left upper extremity compares favorably with the right, but it is much less dexterous. There is no hypertonia or deformity. When the patient is sitting or lying the feet assume a natural position save that the big toe is in a state of partial extension and when he stands they grip the ground in fork-prong fashion.

There is a distinct fine tremor of both upper extremities; in performing purposeful acts like the finger-nose and finger-finger tests they become exaggerated and intention-like. It is present on both sides but somewhat greater on the left than on the right and it is to be construed as an ataxia.

The tendon jerks of the left side of the body are all exaggerated. On the right side normal. The disparity between the knee and ankle jerks is no greater than that between the triceps jerks. The direct myotatic irritability is increased over the entire body but it is not more increased on the left than on the right, as a matter of fact it seems even to be livelier on the right.

The plantar reflex of the left side is extensor, of the right flexor. A feeble exhaustible clonus is to be obtained on the left side, none on the right. (The clonus on the left side has become permanent during the past 24 hours.) There is a distinct Babinski phenomenon on the left but not on the right.

The Oppenheim phenomenon is also present. The left abdominal has never been elicited since his entrance to the hospital, left epigastric is sluggish; the right abdominal and right epigastric are both lively; the cremasterics are alike on both sides.

Disorder of sensation. There is no disturbance of tactile or thermal sensibility in any part of the body. On one or two occasions he did not seem to appreciate contact stimuli as keenly in the left leg as in the right. We have never been able to corroborate this to our satisfaction. There is no disturbance of stereognostic sensibility and there is no adiadokokinesia. He does not detect alterations of position in his left toes and foot as distinctly as on the right. There is no disturbance of the postural sensibility of the upper extremity.

Examination of the eyes show them to be entirely normal and there is no elevation of the papillae. There is no limitation in the fields, no disorder of the retinal vessels; but he has a refractive trouble which is readily corrected with glasses.

He has had no elevation of temperature, no particular disorder of his pulse rate and the laboratory examinations are all negative. Dr. Culbert reports the presence of pus in his nose and that his sinuses do not transilluminate very clearly. The x-rays made by Dr. Evans show them to be practically normal.

During the past 24 hours there has been a marked increase in his objective symptoms. He now has astereognosis and asymbolia in the left hand. Marked disturbance of postural sensibility in the left upper extremity and in the left lower and the hemiplegia has become much more pronounced.

REMARKS.

When we take into consideration the onset of the symptoms, the way in which they have developed and their association in conjunction with the character and display of the physical signs, we are led to the conclusion that the lesion which is respon-

sible for his condition must be in the right hemisphere posterior to the fissure of Rolando. The nature of the lesion would seem to lie between a neoplasm and one of vascular origin. In the absence of any alteration in the cardiovascular system and in the absence of its chief cause, lues, a vascular lesion can, I think, safely be excluded. Were it not for the fact that the most constant accompaniment of cerebral neoplasm, namely optic neuritis, is absent, one would have no hesitation in making the diagnosis with much certainty. The rather abrupt onset of the symptoms, the character and location of the headache, the pain and clonic manifestation in the left knee and the unilaterality of the spastic manifestations associated with increasing loss of postural sense in the left lower extremity must be considered fairly pathognomonic. The absence of choked discs in cerebral neoplasm even when situated in the substance of the hemispheres and of very considerable size is not such a rare occurrence as to require comment. When a neoplasm occurs without causing a rapid increase of intracranial pressure optic neuritis may not develop. We do not fully understand what the factors are that lead up to increased intracranial pressure from cerebral neoplasm; but in this instance the fact must be assumed that they do not exist. Concerning the nature of the growth our belief must be wholly speculative. That it is not of a gummatous formation is practically excluded by the state of the serum and cerebrospinal fluid. It might well be a tuberculous growth and have its chief seat in the pia. There is much in the appearance of the patient and clinical course of the disorder that suggests this. Judging from experience with similar cases, however, it is likely that the alleged growth is of a sarcomatous nature.

In regard to the symptoms which he has had for the past year, namely, manifestations of distress and pain in the extremities and joints, it must be said, after careful review of the histories of individuals from whom brain tumors have been removed, that not infrequently they have complained, often over long periods, of symptoms that are interpreted as neurasthenia, which concept is so elastic, that it readily includes the symptoms of chronic rheumatism.

It is proposed to have an exploratory operation done upon this patient as soon as possible, and he will be shown at some subsequent conference.

OPERATION.

On the day following this patient's presentation before the conference, craniotomy was performed by Dr. Elsberg. His condition had become rapidly worse, so that he was semistuporous several hours before he reached the operating room. He was given morphia, gr. 1/6, and there was some doubt whether his stupor then was due to the drug or his cerebral condition.

Description of the Operation. An osteoplastic flap of the right parieto-temporal region was made. The dura was seen to be bulging. To relieve the apparent intracranial pressure a right subtemporal decompression was done. Then an aspirating needle was thrust into the right upper post-Rolandic area. Several drops of a mucoid material were aspirated. Thereupon an opening about two inches in length was made at the point of aspiration and about 50 c.c. of a yellowish mucoid material drained off. Under the microscope this was seen to be made up of red

cells, large phagocytic cells containing detritus, gliomatous tissue and single glioma cells. The opening was closed and the osteoplastic flap replaced. The post-operative temperature was 104, the pulse weak, and the respiration labored and stertorous. A right facial paresis developed. Stimulation did not seem to produce the desired results and patient died at 2.30 P.M. on the day following the operation.

A CASE OF MYASTHENIA GRAVIS OF INTESTINAL TYPE.

DR. WALTER TIMME of the Third Division presented a case belonging in the category of myasthenia gravis of ophthalmoplegic type, but at the same time presenting some symptoms of muscular dystrophy of the thigh muscles. The patient, a manufacturer, 52 years of age, married, with a family of eight children, had been in good health until September, 1914. At that time, due presumably to business difficulties, uncertainties and a pessimistic attitude towards the future, he began to notice that his eyelids began to grow heavy; first one, then after a week or so, the other; there arose an annoying diplopia, and a feeling of general weakness took possession of him. He began to feel excessively fatigued upon slight exertion, his ptosis became worse, his weakness increased, and his condition began to alarm him. He then consulted successively two well-known and competent neurologists. The diagnosis in one case was that of slight ocular palsy due to a mild cerebral hemorrhage. He was advised to take a vacation for a few weeks. He went to Battle Creek from which place he returned unimproved. The second diagnosis then was made of an ocular palsy due to either syphilis or cerebral neoplasm. Syphilis being strenuously denied and the serum Wassermann proving negative, the alternative diagnosis of brain tumor was insisted upon and operation, due to its inaccessible position, declared to be contra-indicated. This hopeless condition could have but one result. The patient sought relief elsewhere—among the Eddyites—and they succeeded partially in restoring his adjustment to the condition. It was only at the earnest suggestion of the family that he finally sought other advice two weeks ago. The examination then revealed the following status: There was a double ptosis, more marked on the left side, which the patient tried to modify with ill success by overaction of the frontalis. There was a divergent strabismus, which closer examination proved to be due to complete fixation of the right globe with only incomplete fixation of the left eyeball—the left external rectus being intact. This condition produced the diplopia. Both fundi were normal and the discs clear with distinct margins and the visual fields were intact. The overactivity of the frontalis produced many transverse wrinkles on the forehead. There was a slight right facial weakness, and also a right palatal weakness. The reflexes were everywhere present and equal excepting that the abdominals and epigastrics could be only occasionally elicited. There was no Babinski sign and no clonus, or tremor, or ataxia. There were no atrophies. Station and gait were normal. The patient declared that on chewing food, his lower jaw easily became fatigued. Walking likewise fatigued him, especially in the extensor thigh muscles and in the hips. This was made more evident when the patient tried to lift himself from a squatting posture several successive times. He finally would place his hands upon his thighs to

get sufficient leverage in a manner suggestive of the pseudo-hypertrophied paralytics. These muscles were then tested for the Jolly myasthenic reaction which proved negative. However, a rapidly interrupted faradic current (118 per minute) passed into the orbicularis palpebrarum of the left side exhausted the muscle within three minutes. The knee jerks were just as active after 100 reactions as at first. The laboratory tests of urine, blood and faeces were practically negative; the blood pressure was 120-130 mm. There were some suggestive signs of a dyspituitarism inasmuch as he had an enormous growth of hair, especially upon his back, where its growth invaded areas distinctly radicular, in position. So that we had a patient in whom the disease of myasthenia gravis had thus far affected the ocular groups of muscles solely, but was beginning to weaken the facial and palatal groups. The dystrophic character of the extensor thigh muscles was of great interest as it placed the case in a transition group between myasthenia gravis and the muscular dystrophies, a fact pointed out and dwelt upon by Dr. Pearce Bailey, who saw the case in consultation at the Neurological Institute. The suggestiveness of a dyspituitary condition is doubly interesting from the fact that several cases of myasthenia gravis are said to have been cured by administration of endocrine gland extracts, notably the pituitary. After this patient had had absolute rest in bed for five days, his ptosis and his diplopia both diminished slightly and there was a suspicion of movement in the external rectus of the right eye. The patient has also been placed on pituitary extract, posterior lobe, gr. $\frac{1}{4}$ t. i. d., and, if possible, will be again presented, before the conference.

A CASE OF HYPOPHYSEAL NEOPLASM WITH IMPROVEMENT AFTER INJECTIONS OF PITUITRIN.

DR. WALTER TIMME of the Third Division showed a case of hypophyseal neoplasm—probably of cystic character, in a woman 44 years of age. She was married, had several children and her history was uneventful up to July, 1913, when she ceased to menstruate.

In September, 1914, she began to have severe headaches and became gradually blind in the left eye. This blindness, however, improved while the right eye vision slowly deteriorated and the headaches remained as before. In this condition she entered the Neurological Institute some two weeks ago. Her neurological condition as to station, gait and reflexes was normal. Both blood and cerebrospinal fluid were negative serologically. She wanted relief from her headaches which were so intense that even her diminished sight was secondary in importance to them. An examination of the visual fields by Dr. Ward A. Holden showed on the left a temporal blindness for red alone, while on the right a complete temporal hemianopia for all color and form was discovered. These findings made absolute what had been previously surmised from an examination of the patient's skull formation and history. She had a somewhat prognathous upper jaw, a broad square chin, a widening of the distance between the molars and an expressionless flattened facies. She furthermore gave a history of polyuria and polydipsia without the presence of glucose in the urine.

REMARKS.

The case is interesting from the antecedent early menopause as a possible causative or better, deter-

mental factor in the pituitary evolution; and also from the fact of the improvement in the left visual field synchronous with the involvement of the right. Such changes may occur in the development of a cyst involving the hypophysis. As the posterior lobe of the pituitary is credited with power to produce rapid secretion and absorption of the cerebrospinal fluid, this patient was treated with injections of pituitrin three times daily. After four or five days the headaches began to diminish so that they were quite bearable. It seems that the right visual field is also a little less contracted than before. In a case mentioned by Elsberg, a complete bitemporal hemianopsia due to hypophyseal condition, disappeared within some weeks as a result of pituitrin injections and there is some reason to hope that a similar fortunate termination may greet us in the case presented.

A CASE OF HEREDITARY BRAIN TUMOR.

DR. FOSTER KENNEDY presented from the Second Division the case of G. E. L., a male, age 16 years, who was admitted to the hospital on Dec. 29, 1914, complaining of occipital headache, staggering gait, double vision and occasional dyspnoea. *His father died of fourth ventricle tumor eight years ago.* There is a family history of epilepsy. Patient had always been well, has been a good athlete and above the average in his school lessons. The onset of the present condition was in April, 1914, when he began to have severe headaches coming on twice a week in the mornings with frequent vomiting of projectile character. In the autumn these symptoms increased in frequency and severity and patient began to feel dull, apathetic. In the beginning of December, 1914, patient had attacks of diplopia and on the 15th of December, at night, his respirations fell to 12 per minute and his pulse rate to 58.

Examination on the 28th of December showed that he had a very slight blurring of both optic discs; a very slight weakness of the left external rectus; coarse nystagmus on looking to the right and fine rapid nystagmus on looking to the left. Marked *vorbeizeigen* on the left side. No marked ataxia in the arms, some staggering to the left, an ill-marked *adiadokokinesis* on the left. The plantar reflexes were not obtained on either side, knee jerks and ankle jerks were brisk and equal as were also the abdominal reflexes.

On the second of January, 1915, there seemed to be considerable advance in papilloedema; pointing but not marked, but there is a coarse rhythmical non-constant tremor in both hands more marked on the right than on the left.

On the fourth of January left external rectus weakness very much more advanced. Plantars right absent, left flexor.

January 10th, weakness definitely present in right sixth and almost complete palsy in left sixth. Cranial nerves otherwise normal. Abdominal reflexes equal.

January 15th, bilateral complete external rectus palsy. Deep reflexes on the left side greater than those on the right; abdominal reflexes equal. Severe left-sided occipital tenderness and headache.

January 29th, tenderness left frontal and left mastoid and occipital region, the right plantar is indefinite, often extensor, the left definitely flexor. Patient says objects seem dim in the central part of the left visual field. This is not so on the right side.

This patient was shown as a case of brain tumor of obscure localization. First diagnosis made upon him was that of lesion of the left cerebellum. Against that diagnosis is the inconstancy of motor ataxia on the left side. An intra-pontine lesion is possible but the double sixth paralysis is of the type associated with peripheral rather than nuclear lesions. It is proposed to do a puncture of the corpus callosum in order to relieve pressure and afford opportunity for further observation with a view to radical procedure. Of special interest in this case is the hereditary tendency to brain tumor.

Book Reviews.

Fewer and Better Babies, or The Limitation of Offspring by the Prevention of Conception; the Enormous Benefits of the Practice to the Individual, Society and the Race Pointed Out and All Objections Answered. BY WILLIAM J. ROBINSON, M.D., Chief of the Department of Genito-Urinary Diseases and Dermatology, Bronx Hospital, Editor of *The Critic and Guide*, Author of "Sexual Problems of To-day," etc., etc. With an introduction by A. Jacobi, M.D., LL.D. New York: The Critic and Guide Company. 1915.

The author's thesis, as shown in the title, is that "under any conditions, and particularly under our present economic conditions, human beings should be able to control the number of their offspring;" that to accomplish this purpose "the knowledge of preventing undesirable conception should not be considered criminal knowledge, that its dissemination should not be considered a criminal offence punishable by hard labor in federal prisons, but that it should be considered knowledge useful and necessary to the welfare of the race and of the individual, and that its dissemination should be as permissible and as respectable as is the dissemination of any hygienic, sanitary or eugenic knowledge." The author proceeds to defend his thesis in a series of chapters dealing with the orthodox remedies, the question of race suicide, the moral and religious issues involved, and various matters of divorce, abortion, prostitution, work and wages. Chapter xxviii, devoted to the best, safest and most harmless means for the prevention of conception, mechanical and chemical, and chapter xxix on the means for the prevention of conception which are disagreeable, uncertain or injurious, have been deleted by the censor, acting under the United States Criminal Code, Section 211 and Section 1142 of the Penal Law, New York Statutes; so that the author has not been permitted, under the law, to enlighten his readers as to his views concerning

the ways and means by which unrestricted sexual intercourse may not result in conception.

The author states his position and maintains it with force and clearness. No one will disagree with him in his view that man and wife should not bring into this world more children than they can rear, and with the assistance of the State educate to useful citizenship. But a reviewer's space does not permit a discussion of the author's opinions in regard to the moral and ethical questions involved, nor of the reasonably probable results of promiscuous sexual relations under legalized methods intended to frustrate the laws of nature. Perhaps it has not occurred to the author that among the various purposes of Divine Providence in placing man on this footstool is that of affording him opportunity, while giving him freedom of will, to train himself in self control and in ruling his own spirit.

Précis de Chirurgie de Guerre. Par EDMOND DELORME, Médecin Inspecteur Général de l'Armée; Ancien Président du Comité Consultatif de Santé de l'Armée; Membre de l'Académie de Médecine; Membre et Ancien Président de la Société de Chirurgie. Paris: Masson et Cie. 1914.

A small book of 200 pages, printed in Paris, immediately after the outbreak of the present unexpected war. It gives the most recent French views upon gunshot wounds, with brief chapters upon weapons, missiles and side arms. The outlines of small arm bullets must be correct, but are for the most part, quite unlike what we have been led to believe of most of the foreign armies.

The book is unexpectedly complete and detailed, for so small a bulk; it is of peculiar interest at present; a good English translation is most desirable, for the precise shades of meaning of the French language are still, unfortunately, beyond the great majority of American surgeons.

The Feces of Children and Adults. Their Examination and Diagnostic Significance, with Indications for Treatment. By P. J. CAMMIDGE, M.D. (Lond.), Containing 13 full-page plates, 7 of which are colored, and 96 illustrations in the text. New York: William Wood and Company. 1914.

This book, which is based on Hecht's "Die Faeces des Säuglings und des Kindes," and Schmidt and Strasburger's "Faeces des Menschen," also contains a considerable amount of original material, the result of the author's own observations. It contains a vast amount of information on the subject, which is well arranged and easily located by means of an unusually

good index. It will be of use to everyone who wishes to examine the feces, whether superficially or in detail. The chapters on the clinical inferences to be drawn from the results of the analyses are instructive. It would have been better if the author had left out the section on the artificial feeding of infants, a subject with which he is evidently not familiar.

Cancer. Its Cause and Treatment. By L. DUNCAN BULKLEY, A.M., M.D. New York: Paul B. Hoeber. 1915.

This volume, based on a series of six lectures by the author at the New York Skin and Cancer Hospital, presents his view as to the metabolic origin of cancer and its rational dietetic and medical treatment. His results are summarized in a series of thirty-one conclusions. Whatever may be one's agreement or disagreement with these, the author's theory deserves judicial consideration like many others that are advanced towards the solution of this enigma of pathology, since it represents a logical and rational contribution to the literature of the subject. The volume closes with a selected alphabetic bibliography of ninety titles.

Philadelphia General Hospital Reports. Vol. 9. Edited by AUGUSTUS A. ESHNER, M.D. Philadelphia: Dunlap Company. 1914.

This belated report of the Philadelphia General Hospital records the scientific and literary work of the staff of that institution during the year 1913. It consists of a series of twenty-seven papers by members of the staff, three obituary memorial notices, and the very brief report of the chief resident physician. Many of the papers are reprinted from several medical periodicals. The resident physician's report records the improvements and repairs made during the previous three years and notes others that are needed. The volume is of interest as a record of hospital productive activity.

Quain's Elements of Anatomy. Eleventh Edition. Editors: SIR EDWARD ALBERT SCHAFER, LL.D. Sc.D., M.D., F.R.S., Professor of Physiology and Histology in the University of Edinburgh; JOHNSON SYMINGTON, M.D., F.R.S., Professor of Anatomy in the Queen's University of Belfast; and THOMAS HASTIE BRYCE, M.A., M.D., Professor of Anatomy in the University of Glasgow. In four volumes, Vol. IV, Part 1. Osteology and Arthrology, by T. H. BRYCE. London: Longmans, Green and Company. 1915.

This first part of the fourth volume of Quain's Anatomy continues the production of this latest eleventh edition of a standard Scot

tish text-book. It forms in itself a complete monograph on the bones and joints. The Basle nomenclature has been in great part adopted; the text has been thoroughly revised and much of it rewritten; new sections on the development of the skeleton have been added; and the paragraphs dealing with variations have been expanded. The work is illustrated with 247 text figures and 28 new colored plates. An appendix contains an elaborate bibliographical index of recent literature on osteology and arthrology. This volume maintains the high standard of merit of its classic original and of the preceding volumes of this edition.

Student's Manual of Gynecology. By JOHN OSBORN POLAK, M.Sc., M.D., F.A.C.S., Professor of Obstetrics and Gynecology, Long Island College Hospital; Professor of Obstetrics in the Dartmouth Medical School; Gynecologist to the Jewish Hospital; Consulting Gynecologist to the Bushwick, Coney Island, Deaconess' and Williamsburgh Hospitals, Brooklyn, and the People's Hospital, New York; Fellow American Gynecological Society, New York Academy of Medicine, etc. Illustrated with 100 engravings and 9 colored plates. Philadelphia and New York: Lea and Febiger.

This new book represents an effort to present a concise picture "of the pathology and symptomatology of those diseases peculiar to women, as well as a brief summary of the accepted principles of treatment." The purpose is praiseworthy and in places in the book the work is well done, but it ought to have been done better by Dr. Polak, and will have to be done better to meet the need which exists. It is to be hoped its defects will be remedied in a new edition, which should include revision.

There are numerous lapses from the precision which is essential to accurate conciseness. The first page of the text may be cited by way of making clear what is meant: "The important functions of the genital organs in woman are the processes associated with reproduction, *i.e.*,

"1. The alterations in the uterus and ovaries by which menstruation is established, and by which its periodic recurrence is maintained and finally discontinued.

"2. The relation of the sexes in copulation.

"3. The fecundation and nutrition of the ovum.

"4. The processes by which the matured product attains a separate existence. These functions occur at definite physiologic periods in the life of the human female, *i.e.*

"The period of infancy and adolescence, or childhood.

"The period of sexual activity (maturity).

"The period of senility."

To the mind of the student, then, we have presented four functions of the genital organs, performed during three periods in the life of the individual. One has but to consider this analysis from the point of clearness to see its inadequacy. There is a condensed statement, but it would cloud rather than illuminate the mind of the student. Seemingly clear, on investigation it lacks insight.

On page 43, the left ureter is pictured as lying in front of the bowel. On page 51 it is stated that passing the "sound or probe into the uterus" "is a dangerous procedure." This categorical statement deserves an amplification it does not receive. On page 203 is the statement that "complete prolapse" "is where the uterus is nearly without the vagina." (The italics are the reviewer's). On page 274: The cause "of exfoliative endometritis" (membranous dysmenorrhea) "is chronic endometritis." The pathologist will hardly agree to this.

These few illustrative quotations are not characteristic of the whole book. But the student will not be able to discriminate among statements which he meets for the first time.

Human Anatomy. A Complete Systematic Treatise by English and American Authors. Edited by C. M. JACKSON, M.S., M.D., Professor and Director of the Department of Anatomy, University of Minnesota. Fifth edition, revised and largely rewritten. Philadelphia: P. Blakiston's Son and Company. 1915.

This fifth edition of a standard Anglo-American text-book of anatomy maintains the merits of preceding editions. It was the first general text-book of anatomy in English to adopt the Basle nomenclature, and this has been consistently retained in its Anglicized form. In the present edition the attempt is made for the first time to discriminate systematically in the use of sizes of type, the more fundamental facts being printed in large type, the details in smaller. All the sections have been thoroughly revised and there has been a re-arrangement of some of the subject matter. The teeth have been transferred from the section on osteology to that on the digestive system. The tongue and nose are transferred respectively to the digestive and respiratory system, except the portions forming the organs of taste and smell, which have been retained in the section on the special senses. The ductless glands have been included in the section on the skin. The book is illustrated with 1182 figures, 358 of which are printed in colors. The authors of the various sections are for the most part the same as in the fourth edition, but the retirement of Sir Henry Morris and of Professor McMurrieh, as editors, has placed this important duty in the hands of Dr. Jackson, who is to be congratulated on the success with which it has been performed.

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SOME OF THE WORK UNDER THE THOMAS THOMPSON TRUST.

THERE has lately been published the report of an investigation into the extent and care of sickness in Dutchess County, N. Y., made by the committee on hospitals of the New York State Charities Aid Association, at the request of the Thomas Thompson Trust of Boston, which is primarily interested in the improvement of social conditions and engaged in active work in the town of Rhinebeck, in this county, and in Brattleboro, Vermont. In the former town the care of the sick centers in Thompson House, established in 1903 in Rhinebeck village by the trustees of the trust. Originally used as a nursing headquarters and as a home for indigent sewing women, this has gradually developed into a small hospital, and it now has a

capacity of fourteen beds (one for every 250 of the population).

It was more important to have more exact knowledge of the sickness which had occurred in the county, in order to draw trustworthy conclusions as to how adequately or inadequately the existing public and private facilities were meeting the needs of the community. With the exception of certain infectious diseases, reported incompletely, at best, to the health officers, there are no public records of sickness in Dutchess County—a condition true, however, of the county in general. The method usually employed for estimating the amount of sickness is to assume a certain morbidity rate for each disease, based upon the recorded death-rate for that disease. This is arbitrary, and naturally fails to throw any light on the kind of care the patients received or on the conditions attending or contributing to their sickness. In this investigation the plan was to secure, directly from the families in which it had occurred, as full and accurate data as possible concerning sickness, including the medical and nursing service obtained, its efficiency and cost, the need of and the demand for domestic assistance in the homes where sickness occurred, and the efficiency with which the demand was met. The attending physician was also consulted, either personally or by letter, about each recorded case of sickness; in this way the statements made were substantiated, and the medical viewpoint as to the character of the sickness and the adequacy of the care of the patient ascertained. By finding out the character of the sickness which actually occurred in certain typical communities during a specified length of time, and by determining the conditions under which it existed, its treatment, and the apparent results of the treatment, it was thought that data might be secured which, when analyzed, would point to improvements in the methods of caring for the sick and of preventing disease. It was not always possible, however, to learn the real cause of the sickness recorded. The family seldom had any idea of the cause, and was often vague as to the exact duration of the illness, and the physicians, especially those in the rural sections, were equally vague on these points. It is not very creditable to the profession to learn that their records were generally found to consist solely of the number and cost of the calls made, and, if the bill had been met, even these scant data had usually been de-

stroyed; while there were practically no records kept of patients who had paid the physician's fee at the time of the call. This inquiry is, so far as known, the first systematic attempt which has been made to secure direct and detailed information concerning sickness in the home. When the plan of the investigation was presented to the Poughkeepsie Academy of Medicine the interest of that body was at once aroused, and it is stated that throughout the investigation the coöperation afforded by it was of the greatest value.

The study was an attempt to secure reliable data relative to sickness which had occurred during a sixteen-month period in certain selected communities; these comprising the typical rural townships of Rhinebeck, Stamford, Milan and Clinton, which are contiguous to each other, and the fourth ward of Poughkeepsie, which was chosen as being more typical of that city as a whole than any other one ward. In this ward of Poughkeepsie and in the town of Rhinebeck, which includes the two village corporations of Rhinebeck and Rhinecliff, a house-to-house canvass was made to inquire of every family concerning cases of illness during the period covered; but as the time allowed for field work was limited, it was impossible to conduct such a detailed canvass in the other towns mentioned. The importance of the findings of this house-to-house canvass of selected districts of Dutchess County is regarded as lying in the fact that there is every reason to believe that the amount of inadequately cared for sickness discovered is typical of what one may expect to find in very many other communities, not only in the state of New York but throughout the nation. Here is a group made up of a small city and several country communities in normal times (1912-13)—no unusual epidemics, no extraordinary social or industrial conditions—during a period shown by reported deaths, reported cases of contagious disease, and the unanimous testimony of physicians to have been a "light year" for sickness. If Dutchess County varies from the normal, it varies in having had a better chance to improve itself than many other communities, for it has favorable conditions which other communities lack, as, for example, Vassar College, large charitable and benevolent endowments, wealthy and public-spirited citizens, nearness to a great city like New York, and ample steamboat facilities on the Hudson, as well as trunk line railroad service. If, under these circumstances, conditions are not what they should be, it is reasonable to

suppose that in less favored communities they are at least equally bad. Reference to the section of the report treating of individual cases of illness shows the existence of many striking instances of neglect and of unnecessary suffering. Under present circumstances the general medical and surgical hospital facilities appear to be inadequate; just how far they could be made to meet the need were disease-producing conditions not so widely tolerated, and were there an appreciable amount of organized home care of the sick and of preventive work, is a question. In the rural districts especially, little effort has been made to check infection. There are, moreover, no facilities for the treatment of alcoholic and early psychopathic cases, nor are there adequate provisions for the care of the feeble-minded and epileptic. Whether the present facilities for maternity cases are sufficient is also a matter to be considered. The medical inspection of school children is also inefficient, and the after-care which such inspection should necessarily involve is practically never given, at least in the rural districts. Rhinebeck town, however, is exceptional in this respect, and although the school nursing was intermittent until the winter of 1913-14, the importance of the work is recognized and continuous effort is being made to meet the problem presented. Efficient attendance, such as that necessitated in any plan for providing adequate care for the sick is not always available. Trained nurses are obtained, it is true, from various centers, but no attempt is made in the county, by organization, to make sure that those who most need the services of such nurses secure them, or to see that there is a sufficient supply of untrained nursing and household service, though this kind of service makes up over 60% of that needed in homes where there is sickness.

Closely involved in the service to the sick, it is held, are the still more important questions of preventing sickness by the education of the community in health matters and by doing away with disease-breeding conditions. Any thorough-going attempt to deal properly with illness in a community must find the proper balance between institutional and home work; it must also find the balance between the palliative work, whether in home or hospital, which relieves suffering due to sickness and the preventive work which teaches people how to escape disease and also removes the insanitary conditions which give rise to disease.

THE PROPHYLAXIS OF FEEBLE-MINDEDNESS.

IN another column of this issue of the JOURNAL we publish an important brief communication by Dr. Frankwood E. Williams, executive secretary of the Massachusetts Society for Mental Hygiene, on "Psychopathic Hospitals and Prophylaxis." At a monthly meeting of the Monday Evening Club held in Boston recently, Dr. Williams gave an address on the subject of the cost to the community of caring for its feeble-minded. In this address Dr. Williams pointed out the great possibility of mental prophylaxis as it can be practiced in the psychopathic institutions in the prevention of the increase of the number of feeble-minded in the community, a class whose cost to the state exceeds that of almost any other group of dependents, with the exception of the tuberculous.

"When a state has to expend each year over \$4,000,000 for the support of any one group of its population, that group presents a serious problem. When Massachusetts first began to provide public care for its insane, the matter appeared to be a comparatively simple one. One hospital providing for 500 patients was considered sufficient. In less than a hundred years the state finds itself with sixteen institutions, caring for some 21,000 patients a year at a cost, last year, of \$4,547,768. Patients are being admitted to the state hospitals at a rate of over 3000 a year. Some of these recover, but the majority are incapacitated the rest of their lives. The efforts of the state up to the present have not only not lessened the problem, they have not even kept pace with it. And the reason is not far to seek. Providing for the care of the mentally diseased after the damage has been done, important and essential as a humanitarian measure, will have little effect in the prevention of mental disease. The emphasis of our efforts is misplaced. Greater stress must be placed upon efforts at prevention. A hundred years ago this could not be done, as the causes of mental disease were unknown, but today we do know that heredity, alcohol and syphilis are the three most important factors producing mental disease.

"There is one family in this state, and it is not an exceptional family of its kind, composed of a feeble-minded father and mother and nine feeble-minded children. The parents have been unable to care for their children, and the state has found it necessary to take charge of them. To care for these children the commonwealth has expended over \$16,000 up to Jan. 1 of this year."

This address acquires additional significance in conjunction with Dr. Williams' article in this

issue of the JOURNAL. Dr. Williams points out a distinct group of individuals whose psychopathic defects proceeding from definite causes, may be temporary and may be prevented from development by judicious observation and treatment. Such a duty is the function of psychopathic hospitals and clinics and its importance to the nation is almost incalculable when it is considered that successful mental prophylaxis not only prevents the immediate suffering of the individual and his family but also the perpetuation of similar defects in future generations with the immense cost involved in the subsequent care of those who thereby become dependent.

VENEREAL PROPHYLAXIS.

Now that such excellent results are reported by the army and navy medical officers from the use of the prophylactic packet in reduction of venereal incidence among the enlisted men, it seems timely to urge the employment of similar methods elsewhere where venereal diseases are likely to be prevalent. Such a place exists particularly in the merchant marine. No organized effort has been made to teach the members of this class prophylaxis, although as a body in peace times they compose a class very much larger than the combined strengths of military organizations. This government is put to a large expense in the maintenance of many marine hospitals and hospitals for the insane. In the former the greater part of the patients suffer from acute or chronic venereal diseases or their complications. In the latter many of the mental or nervous disorders are directly traceable to venereal infection. Crews of vessels who are entitled to treatment in these institutions should be required to establish among themselves the approved methods of prophylaxis. Aside from the very few accidents occurring aboard, the greater part of the incapacity during any one voyage is due to venereal disease. The cost of supplying a whole crew with the prophylactic packet would hardly equal the cost of treating one case of disease, and would be less than the loss occurring by the incapacity of such a member during treatment.

Because of the wide range of travel of merchantmen they would act as missionaries in this work of prophylaxis among other crews with whom they came in contact. The venereal in-

fection of any given community is largely augmented by importations from vessels touching such places, and it will be a step in the eradication of venereal infection when these sources are put under control.

The plea that the teaching of prophylactic measures is an incentive to immorality is too theoretical and problematic to deserve more than passing attention, in the face of the suffering and injury as well as mortality induced by these very preventable diseases. If only those infected through immorality were concerned in this question one might almost be tempted to let them take their "medicine"—though such a point of view is unworthy of progressive thinking—but in fact it is the innocent who suffer most, either by infection directly, or indirectly, or through heredity. Venereal disease when once established has a tendency toward permanence, whereas immorality is a variable factor, changing with the composition of the particular social community and with its code of morals. No case of ophthalmia neonatorum or congenital syphilis has ever been reported as the result purely of a breach of the moral code.

A NEW FIELD FOR AMERICAN MEDICAL WRITERS.

It is given to some men to express their opinions in fluent English and among our profession those fortunate ones are found most often in the pages of the medical periodicals. The works of American medical writers, with a few notable exceptions, have not been found much in the columns of our English contemporaries, and there are several reasons for this.

One is, that the natural tendency of the writer is to publish his work in his own country where his audience will probably be more sympathetic. Another is, that the editors of journals in foreign countries, such as England, prefer to use the works of their compatriots. Then might be added the extra time and expense involved in correspondence across the ocean.

The present European conflict, however, gives rise to a different situation. In England a great many of the doctors are at the front, those who are left are harder worked than usual and so there is little time for literary labors. On this account some of the English journals have suspended publication temporarily while others are obviously suffering for want of material.

It is in the power of American medical men

to relieve this situation somewhat, if they will. Let them send some of their papers to English journals for a time at least and it is probable that they will be warmly welcomed. It may be also the means of bringing about professional intimacies between the physicians on the other side of the Atlantic and this, to their mutual advantage.

MORE COSMETIC SURGERY.

APART from his function in the relief of physical suffering, the surgeon is often called to ease another kind, a more refined but none the less acute form, the psychic suffering attendant upon deformity or disfigurement. The domain of plastic surgery is large and increasing; and although furnishing entertainment to the comic writers and sneeringly referred to by some colleagues as "beauty doctors" the practitioners of this art perform a very real service to the community.

In the *Annals of Surgery* for May, 1915, Dr. Leonard Freeman adds to the resources of the surgeon interested in this specialty by a valuable contribution. He has devised a treatment for so-called "false keloid" which now and then appears sometime afterward to mar an otherwise successful operation. He thinks that this blemish is due to tension on the scar, causing a hypertrophy of the cicatricial tissue. Tubercular patients appear to be particularly predisposed, so that it is found as an aftermath to excision of tubercular cervical glands, in which location it is a great disfigurement, especially in women.

Dr. Freeman treats this condition by the free transplantation of fascia from some other part of the body, which he sutures to the superficial fascia on one side of the wound and to the deeper tissues on the other. He describes two cases where he removed these growths and transplanted the fascia with gratifying results. The method, he says, is of no value in true keloid.

DRUG REGISTRATION.

PHYSICIANS are reminded that their drug registration under the provisions of the Harrison law must be renewed on or before July 1, 1915, for the ensuing year. This may be done upon payment of \$1.00 at the office of the local collector of internal revenue. For the convenience of physicians, the same registration number previously held will, upon request, be re-issued to each physician.

MEDICAL NOTES.

SECOND ANNUAL MEETING OF THE AMERICAN ASSOCIATION OF IMMUNOLOGISTS.—The second annual meeting of the American Association of Immunologists was held at the New Willard Hotel in Washington, D.C., on Monday, May 10. Dr. James W. Jobling of the Vanderbilt School of Medicine, Nashville, Tenn., was elected president, Dr. George P. Sanborn of Boston, Mass., vice president, and Dr. John A. Kolmer of Philadelphia, Pa., was elected to the council for the ensuing year.

Dr. Oliver S. Hillman of New York City, and Dr. Victor C. Vaughan, Jr., of Detroit, Mich., were elected active members, and Professor Emil Abderhalden of Halle, Germany, Professor Victor C. Vaughan of Ann Arbor, Mich., and Professor Edward C. Rosenow of Chicago, were elected to honorary membership.

The Immunologists now have 60 active members and 20 applications for membership. The total number of members allowed by the constitution and by-laws is one hundred. Dr. Martin J. Synnot of Montclair, N. J., is secretary.

SYRACUSE UNIVERSITY.—At the commencement exercises of Syracuse University the honorary degree of LL.D. was conferred upon Dr. Henry L. Elsner, professor of medicine in the Medical Department of the University.

LOW WEEK'S DEATH RATE IN NEW YORK.—During the week ending June 12, 1497 deaths were reported as against 1365 for the corresponding week of last year, an actual increase of 114 deaths. If, however, the increase in the population is considered, there were only 60 more deaths. In other words, if the death rate prevailing during the corresponding week of last year had prevailed during the past week, there would have been 1419 deaths instead of 1365.

The death rate for the past week was 13.29 as against 12.75 for the corresponding week of last year.

The increase was due to the higher mortality from measles, diarrheal diseases, lobar pneumonia, influenza, heart diseases and diseases of the nervous system. The increase in the number of deaths from organic heart disease is somewhat offset by the decrease in the number of deaths from chronic Bright's disease. The death toll was heaviest at the extremities of life.

The mortality of infants under one year and of persons over 65 showed a very material increase, despite the temporary increase in the number of deaths which occurred in the city last week.

The death rate for the first 24 weeks of 1915 is .63 of a point lower than the rate for the corresponding period of 1914.

AMERICAN ASSOCIATION OF ANESTHETISTS.—The third annual meeting of the American Association of Anesthetists was held in San Francisco on June 21, under the presidency of Dr. Charles K. Teter of Cleveland. At the two scientific sessions numerous addresses were presented. The presidential address was on "Nitrous Oxide Oxygen Anesthesia in Obstetrics."

EXPERIMENTS IN THE PRODUCTION OF ARTIFICIAL IMMUNITY AGAINST TUBERCULOSIS IN CATTLE.—In 1900 the State Livestock Sanitary Board of Pennsylvania began the work of experimenting upon the immunization of animals against tuberculosis. After the possibilities of this work were realized in 1903, a request was made to the Legislature for a larger fund and the purchase of a farm for the continuation of this and other researches in the field of animal diseases. A report of this work has been published by the Board in a pamphlet called Circular No. 32, written by S. H. Gilliland, M.D., State Veterinarian of Pennsylvania. Dr. Gilliland draws the following conclusions from his experiments:

1. Intravenous injections of tubercle bacilli from human sources, non-virulent for cattle, are capable of conferring an immunity in cattle against tuberculosis sufficient to withstand natural infection by association with tuberculous cows.

2. The length of the immunity conferred has not been determined definitely, but it is believed to diminish gradually after two and one-half years.

3. The vaccinated animal during the period of vaccination and for some weeks afterward is more liable to contract tuberculosis than a normal animal. The natural resistance of the animal is apparently lowered during the time of vaccination.

4. The interval between the vaccinations should be of a sufficient length to allow any reaction following the previous vaccination to subside entirely.

5. The degree of immunity obtained in the animal depends to a certain extent upon the number of vaccinations and the amount of vaccine administered.

6. The vaccine should be prepared so it contains no clumps of bacilli and should be administered fresh.

7. A number of the vaccinated animals may give a typical tuberculin reaction following the vaccinations for a period of 20 months. These animals may or may not show lesions of tuberculosis at autopsy.

8. Vaccine administered to animals, already infected with tuberculosis is capable of retarding or holding in check the progress of the disease.

9. The milk from immunized cows when fed over a long period of time appears to increase the resistance of calves and pigs.

10. Vaccination of calves against tuberculosis is of assistance in the eradication of tuberculosis from a herd if done under the proper conditions.

11. Until further knowledge is obtained in regard to the destruction or outcome of the living tubercle bacilli constituting the vaccine, no practical method for the immunization of milk-producing animals under ordinary conditions can be advocated.

THE MAYO FOUNDATION.—In the issue of the JOURNAL of June 10, we reported on the progress of the arrangements being made by the University of Michigan for the acceptance of the fund offered by the Drs. Mayo of Rochester, Minn., for medical research work under the auspices of the University. The report of the special committee of the board of regents was presented on June 5, and was adopted by a unanimous vote of the ten members present. Officers of the board were authorized to enter into legal agreement with the Foundation governing the relationships. The terms of the agreement provided among other things: That the board of regents of the University is by law required to manage the University and appoint its professors and employees and fix their salaries and may accept in trust gifts and bequests upon the terms and conditions on which they are granted: That the foundation gives and grants to the university free of charge the right to use for medical and surgical education and research space and rooms and equipment in a certain building in Rochester, together with all clinical and other materials and opportunities for graduate medical and surgical work available at the Mayo Clinic, St. Mary's Hospital, the Kahler Sanatorium and the Colonial Sanatorium in Rochester, for a period of six years after September 1, 1915. That until September 1, 1921, the net income of each of the trust funds shall remain in the hands of the trustees as an added increment to the principal of the funds. That from and after September 1, 1921, the principal of the funds and all accumulations to that date shall be turned over to and become the property of the University.

MORTALITY RATES SINCE 1815.—Mortality rates computed for the four leading cities of New York, Boston, Philadelphia and New Orleans of the last century give the following interesting figures:

The mortality from all causes during the first 25 years was 28.1 per 1,000 of population, increasing to 30.2 during the second quarter-century, diminishing to 25.7 during the third, and finally to 19.1 during the fourth. The highest death rate prevailed in 1832, when it attained

48.4 per 1,000 of population, due primarily to the yellow-fever epidemic in New Orleans, which raised the death rate in that city to 140.9 per 1,000 of population. Two other conspicuous years in the sanitary history of the four cities were 1849 and 1854, when the death rate attained 42.0 and 41.1 per 1,000 of population, respectively, due chiefly to cholera and yellow fever. The balance of mortality for the last half-century, by principal causes, rated per 100,000 of population is shown in the table below:

	1864-1888	1889-1913
Smallpox	39.5	2.4
Asiatic cholera	7.5	0.01
Yellow fever	14.0	0.6
Scarlet fever	66.3	18.8
Diphtheria and croup	123.2	58.3
Typhoid and typhus fevers	53.1	24.7
Pulmonary tuberculosis	364.9	223.3
Pneumonia	188.5	232.0
Stomach and intestinal diseases	298.6	196.2
Heart diseases	103.7	164.6
Nephritis	78.7	131.7
Cancer	46.4	72.1

The rates for the city of Boston for these periods are as follows:

The quarter-century death rate of Boston increased from 21.3 per 1,000 of population during the period from 1815—1839 to 25.0 during 1840—1864, but decreased to 23.8 during 1865—1889, and diminished to 19.5 during the quarter-century ending with 1914. High rates prevailed in 1821, 1849 and 1872, on account, respectively of measles, cholera and small-pox. The lowest rate, 16.2 per 1000 of population, prevailed in 1914. The balance of mortality for the city of Boston for the last half-century, by principal causes, rated per 100,000 of population is shown in the table below:

	1864-1888	1889-1913
Pulmonary tuberculosis	381.8	219.8
Stomach and intestinal diseases	225.5	165.5
Pneumonia	179.5	223.1
Diphtheria and croup	121.9	59.4
Heart diseases	109.0	189.8
Scarlet fever	61.4	17.3
Bright's disease	53.7	87.0
Typhoid and typhus fevers	51.8	23.0
Cancer	51.5	89.0
Smallpox	19.7	2.2
Cholera	0.3	0.01
Yellow fever	0.1	0.01

AFFILIATION OF COLUMBIA UNIVERSITY AND PRESBYTERIAN HOSPITAL.—In the JOURNAL of May 13, 1915, was reported the proposed affiliation of Columbia University and the Presbyterian Hospital in the establishment of a larger and more serviceable medical school with increased hospital facilities. The plans for the development of this affiliation require the erection of a

plant on the proposed site at Washington Heights, to consist of a building for administration; a building or buildings of much greater capacity than the present group on 59th street to house the medical sciences, the Crocker Cancer Research laboratories, and a School of Sanitary Science and Public Health; a building or buildings to house the Hospital, with an ultimate capacity for at least 1200 patients; a building for the Vanderbilt Clinic, to serve also as the out-patient department of the Hospital; dormitories for the accommodation of at least 400 medical students, with an adequate dining hall for both students and instructors; and a building to house a training school for nurses and to serve as the nurses' home. The plan also provides space for a possible building for the Sloane Hospital. A considerable portion of the total area is to be left for the present unoccupied for the addition of future institutes or foundations which may become necessary as the result of the development of medical science, or which may affiliate themselves with the Hospital and the University.

EUROPEAN WAR NOTES.—It is announced that Dr. John J. Stack of Dorchester has volunteered to go to Serbia to assist Dr. Strong in his work in the suppression of the typhus fever epidemic in that country. Dr. Stack will be accompanied by the five following students of the Harvard Medical School: Charles B. Spruit, 1915; Daniel C. Hankey, 1915; Henry A. Buckner, 1915; Joseph H. McGuire, 1915, and William Sheffield, 1918. It was expected that this party would sail on June 18.

Report from Nish, Serbia, by way of London on June 14, states that there has been formed in that city a central sanitary committee composed of the chiefs of the American, British, French, Russian and Serbian sanitation staffs. This committee is under the presidency of Sir Ralph Paget, with whom Dr. Richard P. Strong and M. Grouitch, under secretary of foreign affairs, have recently made a tour of inspection of the principal hospitals in northern Serbia.

On June 19 the totals of the principal New England relief funds for the European War reached the following amounts:—

Belgian Fund.....	\$263,120.97
Polish Fund.....	47,172.21
Serbian Fund.....	32,998.92
Lithuanian Fund.....	30,000.00

BOSTON AND NEW ENGLAND.

COMPETITION BY DAIRYMEN FOR CLEAN MILK.—It is reported that the competition for clean milk and the award of prizes by the Board of Agriculture of Massachusetts is arousing among the dairymen keener interest than ever before.

The number of entries is twice as large as in previous years. About 200 cash prizes are offered, the highest prize for an individual being \$50. Districts may compete for prizes of \$100 and \$125. These are awarded at the winter meeting of the Board of Agriculture held in Boston, which promises to be the largest meeting in the interests of clean milk held in this state. For the north-eastern district the entries will be closed on June 30, the central district July 31 and the western district August 31.

TUBERCULOSIS DISPENSARY IN NORTHAMPTON.—It is announced that the Northampton Society for the Prevention and Control of Tuberculosis has arranged with the local board of health to establish a dispensary for the treatment of tuberculosis, where free examination and advice will be given to those who cannot afford to pay. The district nurses will share in the work of the dispensary and the expense will be met by the anti-tuberculosis society and the board of health. The arrangement has been approved by the State Board of Health and complies with the state law requirement for establishment of tuberculosis dispensaries in the cities. The dispensary will be opened within two weeks.

MASSACHUSETTS SCHOOL FOR THE FEEBLE-MINDED.—The annual report of the Massachusetts School for the Feeble-Minded at Waltham, shows that there were 218 admissions during the year, and 77 discharged cases. The hospital is much overcrowded and additional accommodations are urgently needed. Patients are obliged to sleep on improvised beds in corridors and on the floor. The Binet-Simon psychological tests have been applied to all the inmates with the following results:

Mental ages at less than a year	25
1 year,	157
2 years,	132
3 years,	150
4 years,	95
5 years,	118
6 years,	166
7 years,	276
8 years,	250
9 years,	163
10 years,	104
11 years,	29

Total 1,665

PRUDENTIAL HOSPITAL ASSOCIATION.—It is announced that the old building of the Children's Hospital on Huntington avenue, Boston, has been purchased by the Prudential Hospital Association Company of the State of Massachusetts, Inc., which plans to make extensive alterations in the building, thereby converting it into a modern five-story public hospital with 220 beds for general medical and surgical cases.

MEDICAL SUPERVISION OF SCHOOLS.—It is reported that there are being made plans by the school committee of Boston and Mayor Curley to place the work of health supervision of the public school under the jurisdiction of the school committee and not under the city board of health, as formerly. This will mean a reduction in the number of examining physicians from eighty to forty with an increase in salary to \$500 a year instead of \$300. The department of health will, however, maintain its staff of nurses to work among school children who need their services.

CONSTRUCTION OF LOCAL TUBERCULOSIS HOSPITALS AND DISPENSARIES.—In previous issues of the JOURNAL we have commented editorially on the law requiring the establishment and maintenance of tuberculosis hospitals and dispensaries in the various communities of this commonwealth. The enforcement of this law has been from time to time delayed, but it appears that by July 1, probably every town between ten thousand and fifty thousand inhabitants will, at least have plans under way for the construction of the required dispensary. Of the larger cities in which the law requires the construction of hospitals all but Brockton and Lowell have already complied with the law.

Massachusetts Medical Society.

ANNUAL MEETING OF THE SUPERVISORS.

At the annual meeting of the Supervising Censors, held in the Copley-Plaza Hotel, Boston, June 8, 1915, it was voted that the following report of the special committee appointed the previous year to consider the plan of examination of candidates for fellowship in the Society be printed in the BOSTON MEDICAL AND SURGICAL JOURNAL and assigned to a special meeting of the Supervisors, to be held on the day of the next meeting of the Council, Wednesday, October 6, 1915.

At the meeting of the Board of Supervisors, in June, 1914, the question was raised as to the advisability of a change in the method of examining candidates.

The present mode of examination was adapted to conditions which no longer obtain. At the time this mode was instituted the range of medical knowledge was so restricted that a well informed physician could have a comprehensive grasp of the entire subject. A written examination, therefore, could be a fair test of attainment and was equally fair for all applicants.

To a limited extent such examinations are still a fair test for the recent graduate; but the development of specialties, many of which never involve the responsibility of practice, has developed a large number of men of high attainment whose fields of knowl-

edge may have little if any region in common with one another or with those of men in active practice. Even the active practitioner must inevitably leave far behind him much of the knowledge which is rightly considered a necessary part of the recent graduate's equipment.

In other words, the present type of examination is fair only to the recent graduate who is in training for it; while it is no test of the attainment of the specialist or the surgeon or physician of long experience.

If there is to be a written test to show that the candidate is sufficiently equipped to meet our standard, there must be sufficient latitude in the form of optional questions to give each candidate an opportunity to indicate his ability in the field of medicine which is covered by his active work.

In this connection it is well to recall that among the men most honored as members of our profession are those whose whole interest and time are devoted to such topics as chemical and biological research, sanitary engineering, social service, the abstruse problems of psychology, the history of medicine and many other subjects far afield from the region commonly thought of as practical medicine.

The matter of admission to the Society cannot be treated adequately without a clear understanding of the objects of the Society, and its policy as to what members of the profession it seeks to include.

Your committee believes the Massachusetts Medical Society does not consider itself in the light of an academy—membership in which is a mark of extraordinary attainment or distinguished service. Neither is it meant to be exclusively a body of practitioners of medicine. Its aim is rather to include the entire reputable body of the profession—every graduate of a recognized school who is reasonably proficient and whose character is satisfactory.

Granting these two premises:

1. The extraordinary diversity of legitimate medical vocations as a result of the recent growth and expansion of what is properly called medicine.

2. What may be called the Society's policy of inclusiveness, the conditions for admission must be viewed in a new light.

It is plain that our present system of written examination is not adapted to meet the situation of today. It does not allow for legitimate diversity of knowledge or vocation. It is easiest for the recent graduate who is in training for examinations of such a kind, having just passed both medical school and state license examinations. It takes no account of experience and judgment, to say nothing of character established by years of practice.

Moreover the system is farcically unjust in its discrimination. A member of a state society in another state is exempt from written examination, no matter how inferior he may be.

On the other hand, a physician of this state; or a physician of another state who either has not joined his state society or has resigned from it is constrained to take the written examination no matter how eminent he may be as a physician or how honored as a man.

Your committee has canvassed opinion sufficiently to discover that it is far from unanimous as to the proper solution of this problem.

The more important suggestions are:

1. Retention of the written examination for all candidates—the paper to be so broad in scope, through alternative questions, that it will meet the problem of diversity.

A few would have the paper much stiffer, if anything, to raise the standard.

2. A modification of the method of marking by allowing a certain per cent. for each five years since graduation, to allow for the narrowing of the field of active work.

3. Abolition of written examination; and reliance

on the attainment of a degree from a school recognized by the Society, and the passing of the State Board as presumptive evidence of preliminary training; with reliance on the oral examination by the Censors to check up any doubts in individual cases, the chief function of the Censors being to determine whether or not the candidate gives evidence through his record and his general bearing that he is desirable as a member.

Your committee believes an examination paper fulfilling the necessary conditions would be impracticable; and is of the opinion that the best solution is presented by abolition of the written test and development of the oral examination, in which the personal equation of the candidate and his record would be important in determining his mark—a wide margin being left to the discretion of the Censors.

It may be said that with the abolition of the written examination the desired uniformity of the examination is lost. But the obvious reply is that even though the printed questions are the same for each district, there can be no uniform standard of marking when there are different sets of examiners for each district.

It has been asked whether the abolition of the written examination could be accomplished without an amendment of the By-laws.

A careful examination of the By-laws shows that a written examination is not specified. The only thing required is that there shall be an examination which satisfies the Censors of the suitability of the candidate.

That the Censors may see fit to give a written examination is implied by two provisions which specify that certain classes of candidates "shall be exempt from written examination."

Before making any radical change there is so much to be considered, and it is so evident that the Supervising Censors have, as yet, given but little thought to this problem, your committee suggests that it would be well to hold a special meeting for a general discussion of the matter.

Respectfully submitted,

G. A. CRAGIN, *Chairman*,
C. D. WHEELER,
N. P. BREED.

Obituary

JOHN HILDRETH MCCOLLOM, M.D.

John Hildreth McCollom, M.D., Harvard, '69; S. M., Dartmouth, '10, died suddenly on Monday morning, June 14, 1915, of angina pectoris. Having been in about his usual health up to the time of retiring, he awoke in the night suffering from the intense "breast pang" so characteristic of angina and died in less than an hour. There had been no premonitory symptoms of the trouble.

Dr. McCollom, the son of Rev. James T. and Elizabeth Phillips (Hildreth) McCollom, was born in Pittston, Me., on May 6, 1843. He graduated from Phillips Andover Academy in 1861 and entered Dartmouth College, where he remained one year. He then entered the army, enlisting in the 30th Massachusetts Infantry. He was made hospital steward and served in that capacity until the close of the war. He saw service in the attacks on the forts below New

Orleans, in the battle of Baton Rouge, at the siege of Vicksburg, in the Shenandoah Valley, at the battles of Winchester, Cedar Creek, etc. He was mustered out of the army in April, '65, and entered the Harvard Medical School, whence he graduated in '69 at the close of a year's service as house surgeon at the Boston City Hospital. He was assistant superintendent at the Marine Hospital in Chelsea for a year or more and finally settled in Boston and entered general practice in 1871.

Dr. McCollom at once became interested in contagious diseases and was appointed assistant to the city physician, having charge of vaccination and the smallpox patients. He once told the writer that he must have vaccinated at least 75,000 persons and that he had never seen a serious result from the operation. He was an early advocate of animal virus, not that it was any greater protection against smallpox, but because it removed the practically groundless fear of conveying other diseases. In 1881 he was made city physician of Boston and held this position until the contagious department of the City Hospital was established in 1895. He was placed in charge of that department and remained there 19 years, making it one of the leading contagious departments in the country.

It was here that Dr. McCollom did his best work—work that is epochal in its way and which places him in the front rank of medical benefactors. To him more than to any one else is doubtless due the present efficient and almost universal practice of giving large doses of antitoxin in diphtheria; doses that are limited in amount only by their effect upon the disease. In the early days of this agent the dose was limited to from three to five thousand units. Dr. McCollom pushed it to 50,000 units and repeated it frequently until he obtained the beneficial results he desired. Three hundred thousand units have been given at a single dose with benefit. Not only have many lives been saved by this method, but much suffering and disability in the way of paralysis, etc., have been prevented. No one unacquainted with pre-antitoxin days can begin to comprehend the radical change brought about by the free and timely use of this agent as inaugurated and advocated far and wide by the subject of this sketch. Many thousands of lives and an untold amount of suffering have been saved thereby. The mortality of this disease at the City Hospital is less than one-fourth of its former amount. Since the introduction of antitoxin there has not been a death among the house doctors, nurses and orderlies from this disease, although there have been nearly 500 cases that have received the treatment therefor. This surprising control of a dreadful affection is due entirely to the prompt and free use of the antitoxin.

Upon the retirement of Dr. Rowe from the position of superintendent and medical director

of the City Hospital in 1908, Dr. McCollom was promoted to that office. He rendered faithful and efficient service in that position until compelled by reason of failing eyesight from cataracts to resign. His resignation took effect on January 31, 1915.

Dr. McCollom's ability as a writer is shown by numerous excellent articles on various medical subjects to be found in the journals, systems of medicine, etc., during the past 40 years. As might be expected, his chief topics of interest were the contagious affections, as diphtheria, scarlet fever, measles, smallpox, etc. His charts showing the practical abolition of smallpox in Boston by vaccination and quarantine, are models of reliability. The exact truth was always his main object. A close student, a faithful observer, a conservative reasoner, his opinions were sound and his advice reliable.

As a teacher, the doctor has rendered excellent service to students in the Harvard Medical School during seventeen years. He was appointed instructor in contagious diseases in 1896, assistant professor in 1903 and professor in 1908. Upon his retirement from the School in 1913, he was made professor emeritus of contagious diseases. He was a member of the Senior Staff of the City Hospital as "Physician for Infectious Diseases." He was a member of numerous medical societies, as the American Medical Association, American Association of Pathologists and Bacteriologists, American Pediatric Society, Massachusetts Medical Society, Boston Society of Medical Science, etc. He was also a member of several clubs, as the St. Botolph, the University, the Harvard and Tavern Clubs, the New England Historical and Genealogical Society, the Harvard Medical Alumni Association and of Aberdour Lodge, A. F. and A. M. In 1875 he married Miss Susan Cartee, who survives him. There are no children.

Dr. McCollom led a busy, useful life, devoted entirely to his professional work. Even his vacations, especially those taken in Europe, were largely given up to investigating contagious hospitals, their methods of construction and administration. For many years he was the leading authority in this part of the country on contagious disease. His large experience at the City Hospital peculiarly fitted him for that position in the professional world. Brought up in an intellectual atmosphere, he was a man of wide reading and culture. Loyal to his friends and to his profession, kindly and self-sacrificing, always doing his utmost for the comfort and welfare of those in his care, always at his post of duty, his natural disposition and his military training combined to make him one of the most dependable of men. You knew where to find him. He had no side issues to distract his attention. The profession and the community trusted him implicitly. His character, his training and his daily life inspired confidence.

His personal and professional modesty was unvarying. He did good work and its results will be a lasting benefit to humanity.

This imperfect tribute to Dr. McCollom may well close with a liberal quotation from a letter sent him by the trustees upon his retirement from the City Hospital.

"Dear Dr. McCollom:—Your letter tendering your resignation as superintendent and medical director of the Boston City Hospital, owing to the advice of your physician, has been laid before the trustees at the meeting this day, and regretfully accepted.

"The trustees are exceedingly sorry that your health has compelled you to take this step. They are reluctant to part with an associate with whom they have enjoyed such long and pleasant relations, and one whose unflagging zeal and earnest and untiring efforts for its welfare have contributed very much to the up-building and the high standing of the Hospital. But above all else stands the record of the great work you have done for the South Department, which will be a monument to you more enduring than bronze or stone. Your unfaltering faith and courage in the use of antitoxin, which has so marvellously decreased the death rate from diphtheria, has saved to the world many thousands of useful lives and a grateful public will ever hold your name in high appreciation and gratitude for your noble services and research. After 42 years of faithful service for the city of Boston, you have the consciousness of having achieved and merited a position that places you in the front ranks of the benefactors of mankind. In your retirement you carry with you the well wishes and high commendation of the trustees and the public. The trustees extend to you their sincere sympathy and the hope that a well-earned rest may restore such measure of health as to enable you to pass many years in comfort and enjoyment."

GEORGE W. GAY, M.D.

Boston, June 16, 1915.

Correspondence

THE AMERICAN HOSPITAL OF PARIS.

SECTION FOR THE WOUNDED.

NEUILLY-SUR-SEINE, May 22, 1915.

Mr. Editor: On reaching Paris, April 1st, the Harvard Unit took over a service of 162 beds in the American Ambulance. Since that time, other beds have been added to the service until we now have something over 190 beds. For a week or so after we first came not all the beds were filled, but for the last three weeks we have had practically no empty beds. Thirty-three cases in 24 hours is the largest number of admissions we have had, and 16 major operative cases has been our heaviest operative day.

The virulent infections with gas-producing organisms, of which there were a number of cases early in April, have become less common as the season ad-

vanced and warm and drier weather followed the cold and rainy period of the early spring. Most of our cases reach us on the second or third day after injury. The wounds are usually infected when we get them. In April almost every wound showed gas-bacilli on culture. In May the proportion of such cases has fallen off materially. At present the ordinary pus-producing organisms are the ones most commonly found in cultures of fresh wounds. Almost every wound contains more or less of the clothing of the soldier, carried in by the missile, but the wounds produced by shell fragments are more frequently contaminated in this way than the bullet wounds. The bullet wounds are the most common injuries, followed closely by wounds from shell fragments. Shrapnel injuries are much less common.

Soldiers severely wounded in head, spine or abdomen are not easily transportable and, therefore, do not reach the base hospitals like this one. Most of our cases are penetrating or perforating wounds of the soft parts with or without bone injuries. The bone cases are among the worst with which we have to deal. A septic compound fracture of such long bones as the humerus or the femur is a very difficult case to handle. In almost every case the bone is shattered into many little pieces and these bone fragments are driven into the tissues in every direction and act like foreign bodies, to prevent healing until they are removed. We have been greatly helped in our work on these cases, by plaster and metal splints devised for each individual case by Dr. Osgood.

Up to May 20th, including the cases we took over when we first came, we have had 370 cases on our service. We have had three deaths, (1) brain abscess and meningitis, (2) perforations of the lung and hemorrhage and (3) diffuse perforative peritonitis; the last case died 10 minutes after entrance to the hospital.

It may interest you to see the list of operative cases we have had. Among the most interesting operations have been cerebral cases upon which Dr. Cushing operated. In two of these cases he was able to remove shell fragments from the brain, by use of the electro-magnet. Dr. Cushing had also two cases of peripheral nerve injury, one a plastic upon the facial nerve, and another upon the musculo-spiral.

Dr. Vincent has had one case for transfusion at this hospital and demonstrated his method of performing this operation also at Dr. Carrel's hospital in Compiègne. There have been other cases in this hospital on other services where Dr. Vincent's apparatus has been used. Dr. Osgood has had a number of orthopedic cases for operation, lengthening tendons and so on, and has contributed very materially to the success of the general service by devising and applying apparatus for retaining the position of difficult compound fractures. On the general service we have had a number of bone cases for operation, plating fractures of the femur, tibia and jaw and a plastic on a jaw with the insertion of a bone graft from a rib. We have been very fortunate so far in that we have had no cases that required amputation on our service, and no cases of secondary hemorrhage have occurred, although both conditions are ordinarily to be expected in a service such as this.

The moral and physical condition of the French soldiers has made a very favorable impression upon all of us. Some of the wounded reach us in a state of very great physical and mental depression. This is not unnatural under the circumstances in spite of the very excellent system of hospital trains which has been established by the French Government for the transport of wounded from the evacuation hospitals to the base hospitals. These trains are well equipped for ambulatory and stretcher cases, and are used exclusively for this service; they arrive in Paris at the freight station at La Chapelle, as a rule, some time in the night. The station has been equipped with portable houses erected on the platform, and a competent staff of orderlies, surgeons and nurses is

on hand to take the wounded from the train, feed them, do emergency dressings and attend to their distribution among the many military hospitals in and about Paris. The distribution of these cases is accomplished in a very orderly manner and the whole system of handling the wounded even under stress is working well. We were told that 2000 wounded were brought to Paris by these trains in one 24-hour period after the fighting at Ypres.

There are many Red Cross hospitals in operation in Paris beside the American Ambulance, although that is the largest one outside of the regular French military hospitals. The Russians and the Japanese have each a hospital in Paris and the English have a large hospital at Versailles. Most of the English wounded, however, are now evacuated to the Channel ports and carried immediately to England. We have about six English in the American Ambulance and almost all are cases that have been in the hospital for a long time. An American from the foreign legion was brought to the hospital the other day. The vast majority of our cases, however, are French with a few Turks and Senegalese.

The attitude of the French medical officers and of the government toward the American Ambulance is most cordial, and its work is held in high esteem by the soldiers as well as by the public.

Very truly yours,

ROBERT B. GREENOUGH, M.D.

LIST OF OPERATIONS PERFORMED DURING APRIL, 1915.

- April 4. Exploration and drainage of compound fracture, left humerus.
- " 7. Exploration for foreign body from right knee.
- " 7. Aspiration of chest.
- " 8. Plastic of cheek and lip.
- " 8. Exploration and drainage of compound fracture, right humerus.
- " 14. Disarticulation of head of left humerus (re-amputation).
- " 16. Freeing of left musculo-spiral nerve from scar.
- " 19. Plastic on left facial nerve.
- " " Removal of shrapnel from left thigh.
- " 20. Removal of bullet from right leg.
- " " Incision and drainage of left leg.
- " 21. Removal of foreign body from neck.
- " " Excision of ulcer of leg and plastic.
- " 22. Incision and drainage of left thigh.
- " 23. Cerebellar exploration for removal of shrapnel.
- " " Operation for radical cure, right mastoid.
- " " Drainage and curettage of right antrum of Highmore.
- " " Open reduction fracture of femur with bone plating.
- " " Radical cure of right femoral hernia.
- " " Manipulation of right elbow.
- " 25. Exploration of right eye and drainage of right antrum of Highmore. Incision and drainage of right hand.
- " " Incision and drainage of hand.
- " " Cleaning and draining of wound of arm.
- " " Exploration and cleaning shrapnel wounds of back.
- " 26. Exploration distal end of femur for foreign body.
- " " Incision and drainage of septic arm. Excision and suture of wounds of both thighs.
- " " Incision and drainage of septic arm.
- " 27. Laminectomy for division of spinal cord.
- " " Craniotomy for removal of shell fragments.
- " " Amputation of finger, left hand.
- " " Incision and drainage, septic finger. Cleaning and suturing wound, arm.
- " " Incision and drainage of septic arm.
- " 28. Cranial exploration for foreign body.

- April 28. Incision and drainage of septic hand.
 " " Incision and drainage of wounds of both thighs.
 " 29. Incision and drainage of leg.
 " " Incision and drainage of wound of right thigh. Removal of shell fragment.
 " " Cranial exploration for removal of foreign body, and drainage.
 " " Incision and drainage of foot.
 " 30. Exploration of sinus of leg and drainage.
 " " Incision and drainage of thigh.
 " " Right subtemporal decompression and drainage of old wound of skull.
 " " Craniotomy, exploratory and drainage.
 " " Incision and drainage of foot, and removal of foreign body.

[NOTE.—The above letter was received for simultaneous publication in this JOURNAL and in the *Harvard Alumni Bulletin*.—EDITOR.]

PRUDENTIAL HOSPITAL ASSOCIATION.

BOSTON, June 17, 1915.

Mr. Editor: I have just received a letter from a physician who asks my opinion of the Prudential Hospital Association. This physician states that a gentleman claiming to represent this association called upon him, stated that he had been sent by me, and that I had associated myself with the institution. My only knowledge of the Prudential Hospital Association is derived from an article that recently appeared in the daily press. This knowledge is not sufficient to warrant me in expressing an opinion as to the merits or demerits of the plan. The use of my name in connection with the project is entirely unauthorized.

Yours very truly,
 HORACE D. ARNOLD, M.D.

Miscellany.

APPOINTMENTS.

ROCKEFELLER FOUNDATION. Dr. Victor G. Heiser of the United States Public Health Service, formerly director of health in the Philippines, has resigned that position and accepted an appointment as director for the Orient of the work of the Rockefeller Foundation.

UNIVERSITY OF CALIFORNIA. Dr. George W. Corner has been appointed assistant professor of anatomy and Mr. I. C. Hall, assistant professor of bacteriology.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING JUNE 12, 1915.

CONTRIBUTIONS.

New England Hospital Medical Society, Boston, Mass.....	\$ 30.00
Aux Plaines Branch of Chicago Med. Soc., Maywood, Ill.....	44.00
Vigo County Medical Society, Terre Haute, Ind.....	25.00
Dr. Jacob Schwinn, Wheeling, W. Va.....	10.00
Dr. John Bryant, Boston, Mass.....	10.00
Drs. Robert J. and John L. Sageron, Johnstown, Pa.....	10.00
Dr. Catherine H. Travis, New Britain, Conn.	2.00
Dr. George B. Lake, Manila, P. I.....	2.00
Dr. M. J. Keneflick, Algona, Iowa.....	10.00
Dr. E. W. Link, Palestine, Texas.....	10.00
(Second contribution)	

Receipts for the week ending June 12.....\$ 153.00

Previously reported receipts..... 7159.00

Total receipts.....\$7312.00
 Disbursements for the week ending June 12:
 140 standard boxes of food @ \$2.28..\$ 319.20
 Previously reported disbursements:
 1625 standard boxes of food @ \$2.20..\$3575.00
 1274 standard boxes of food @ \$2.28.. 485.64
 213 standard boxes of food @ \$2.28.. 485.64

Total disbursements.....\$7310.04

Balance \$1.96

F. F. SIMPSON, M.D., Treasurer,
 7048 Jenkins Arcade Bldg.,
 Pittsburg, Pa.

RECENT DEATHS.

DR. OTTO MARKUS, who was killed by a shell in the battle of the Argonne, had served as assistant in the medical clinic in the University of Würzburg. He was the author of numerous valuable contributions in neurology and psychiatry and prior to the war had been engaged in research on histology of the ganglion cells of the vegetative nervous system.

DR. JOHN MASON HASTINGS, a Fellow of The Massachusetts Medical Society having a residence in Dorchester, died at Provincetown, Mass., on June 10. He received the degree of M.D. from the Harvard Medical School in 1895, having previously graduated with the degree of A.B. from Bowdoin College in 1891. He was physician to the gynecological out-patient department of the Carney Hospital and a member of the American Medical Association and the Dorchester Medical Society.

DR. HENRY JAMES, who died at Waterbury, Vt., on June 10, was born in 1832. During the Civil War he commanded the hospital ship *Maine* and subsequently became surgeon-general of the Vermont National Guard. He was professor of surgery at the University of Vermont Medical College. He was a member of the American Medical Association, an honorary member of the California Medical Society, a member of the Vermont Medical Society and a former member of The Massachusetts Medical Society from 1857 to 1876.

DR. ALFRED MITCHELL, who died on June 13 at Brunswick, Maine, was born in 1837. He received the degree of M.D. in 1865 from the New York College of Physicians and Surgeons, having previously graduated from Bowdoin College. During the Civil War he served as assistant surgeon of the Ninth Maine Volunteers. At the close of the war he settled at Brunswick, where he continued active in the practise of his profession until his retirement in 1914. He served from 1869 to 1911 as dean of the Maine Medical School. In 1892 and 1893 he was president of the Maine Medical Association. He is survived by three daughters and one son.

DR. FREDERICK MORTIMER HEMENWAY, who died on June 13 in Allston, Mass., was born at Framingham, Mass., on November 29, 1848. He studied dentistry as an apprentice to Dr. C. B. Erickson at Hartford, Conn. Coming to Boston in 1882, he entered the Boston Dental College from which he received the degree of D.M.D. in 1888, since which time he had practised his profession in this city. From 1896 to 1912 he was professor of prosthetic dentistry in the Tufts Dental School. He was a member of the Massachusetts Dental Society. He is survived by his widow and by two sons.

DR. JOSEPH PREVETT, of Boston, who died on June 6 at Derry, N. H., was born in Italy in 1880. Coming to the United States he settled at Boston in 1903 and since that time had practised his profession in this city. He is survived by his widow and three children.





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